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ANGINA PECTORIS *

E. FLETCHER INGALS, M.D.†

Professor of Diseases of the Chest, Nose and Throat, Rush Medical College; Professorial Lecturer in Medicine, University of Chicago

WITH THE COLLABORATION OF

WILLIAM R. MEEKER, B.S.

Associate in Anatomy, University of Chicago

CHICAGO

I do not know of any greater service I can render the fellows of this institute and the public than by considering, from a very intimate acquaintance, the time-worn affection that forms the subject of this article. I cannot hope to add much that is new, but I confidently hope to call attention to vital points that may have been overlooked by some practitioners, though of the highest importance to sufferers from this malady.

Just at the beginning of the world war, Sir Clifford Allbutt published an exhaustive work on diseases of the arteries and angina pectoris, in which he presents many arguments against some of the long-accepted views on these subjects. But the very comprehensiveness of the two large volumes places the matter far beyond the time limit of the average practitioner, and almost beyond that of the specialist devoted to diseases of the circulatory organs. A careful study of Allbutt's work and an analysis of sixty histories of angina pectoris, out of the 1,396 cases of heart disease that I find among my records of private patients (exclusive of all dispensary and hospital cases) has considerably modified the views I formerly held on this subject. Many of the patients were seen in consultations with other physicians or came to me from a distance, so that I saw them only once or twice. In most of them I did not learn of the final result, and in very few, because of their being private patients, have I been able to see the pathologic changes. Allbutt has been able to make extensive studies of pathologic changes in this disease; therefore I cannot speak with assurance on points when my former impressions do not coincide with his; but from the clinical standpoint alone I feel confidence in my own observations, and the views I shall present in this paper seem to me sustained by the facts.

SUBJECT AND DEFINITION

Angina pectoris is a paroxysmal painful disease of the circulatory organs in which the pain is usually located near the base of the heart, over the large arteries and in the shoulders, neck and arms, most frequently confined to the left side, but often in the right side. It is often attended by dyspnea and commonly by mental depression or a sense of impending death, which must not be confounded with fear. It is questioned whether the group of symptoms attending angina pectoris should be dignified as a distinct disease, especially since the pathologic findings vary in different cases; yet the variation is much less than in many other affections recognized as morbid entities, so called.

Most authors also recognize pseudo, false or mock angina, which is of nervous origin and commonly associated with intercostal neuralgia. This is much more common in young people than in old, and more frequent in women than in men, although only three fifths of my series of cases were in women, which is a much smaller proportion than I had supposed. It is not a serious affection, although the symptoms are not very different from those of true angina. A careful distinction must be made between these purely neurotic manifestations and mild attacks of true angina associated with diseases of the arteries or of the heart. The neurotic or vasovagal cases are not angina pectoris, although many cases commonly classified under this head are really true angina. Indeed, most cases of so-called pseudo-angina are manifestations of the true disease. Out of sixty cases I observed, twenty-eight were classified as pseudo-angina and thirty-two as true angina; but in the absence of pathologic demonstrations I am inclined to think that in some of them my diagnosis was at fault and that they should have been classed as angina minor, that is, mild attacks of the true angina. Pseudo-angina thus appears to be much less frequent than was formerly supposed.

Many authorities recognize angina sine dolore, which is accompanied by paroxysms of cardiac dyspnea, and is usually quickly fatal, but not attended by pain, or at least, not by severe pain. This is quite different in its manifestations from the angina with which we are most familiar. It is considered by Balfour as one of the manifestations of true angina pectoris; and its frequent appearance in persons who at times suffer from severe paroxysms of cardiac pain with a sense of impending death, together with pathologic findings, support Balfour's view.

The commonly accepted views of the frequency, etiology and prognosis of pseudo-angina, true angina and angina sine dolore, I think, would be changed by a careful study of the evidence presented in this work. Such a study, I feel, would make clinicians more careful in their diagnosis and more helpful in their treatment of patients.

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† The material for this paper was gathered by Dr. Ingals during the past summer; but on his becoming exhausted and being required to take a complete rest, he secured the assistance of Mr. Meeker, who arranged the material in readable form.

MORBID ANATOMY AND PATHOLOGY

True angina is generally supposed to depend on disease of the coronary arteries, causing their contraction or obliteration and thus interfering with the nutrition of the myocardium. But if, as held by some observers, it more commonly results from disease of the aorta or possibly of some of the other arteries, we can more readily understand the diverse seats of pain and we can better realize why very often the heart is not at all disturbed even by most severe attacks. Myocardial disease is not essential to angina pectoris, although it is present in many cases. It also seems proved that angina does not occur in the majority of cases of coronary occlusion.

As for the mechanism by which the pain is brought on, it is probably due to excitation of the nerve end organs in the sheath of the ascending aorta and other large arteries. It is the kind of pain that belongs to fibrous tissues.

PREDISPOSING CAUSES

In my series of thirty-two cases, four were under 30 years; five between 30 and 40; six between 40 and 50; seven between 50 and 60; seven between 60 and 70; two between 70 and 80, and one of more than 80 years. It is thus more common between the ages of 50 and 70. It is more common in men, as may be seen by my series which included twenty men and eleven women. The use of alcoholics, tobacco and coffee predisposes.

It is asserted that syphilis is a factor, especially in those under 45 years old. Typhoid, rheumatism, gout and influenza predispose in patients of more than 45. In some mild cases in which the patients seem to be benefited by exercise, it is probably of gouty origin. In those past 50 years of age, arteriosclerosis and high blood pressure, especially if associated with diseases of the aorta, are etiologic factors. It also occurs with mitral stenosis, thrombosis and pericarditis. Angina pectoris and aneurysm are often coincident, but the angina frequently appears a long time before the discovery of the aneurysm.

Occupation.—It is a curious fact that out of thirty-two cases classified as true angina pectoris, nine were in physicians, or nearly 30 per cent. I saw two others that were not included in the list because they were not my patients. I attach no significance to these figures because I do not know why I was consulted by so many physicians; but they serve to emphasize the danger of drawing conclusions from incomplete statistics, and are at least suggestive as to syphilis as an etiologic factor.

EXCITING CAUSES

Some vasomotor disturbance, worry, muscular effort, or annoyance of any kind may bring on an attack. Pain frequently comes on during or after a meal, especially breakfast. Minor attacks of angina are brought on in the same way as the more severe. Only a few cases seem due to a single effort, but two of my cases certainly started in this way, and in X, whose history follows, the first distinct substernal pain was brought on by a rapid walk.

Among the various hypotheses regarding the origin of angina pectoris are distention of the ventricles, cramp of the heart muscle, myocardial ischemia, obstruction and spasm of the coronary arteries, and neuralgia, or vasomotor storm.

The coronary disease is considered a cause by most physicians, but it has been found that a large percentage of those with coronary obstruction have not suffered from angina pectoris. If the process is gradual, a patient may live with 75 per cent. of the coronary lumen occluded, or even with complete obliteration. The spasm hypothesis also seems untenable, though a sudden obstruction of the coronary arteries may cause pain like angina pectoris. In many cases, even though the coronaries may be obstructed, the myocardium remains practically normal. Blocking of the coronary arteries causes dyspnea but often no pain. In a large proportion of fatal cases of angina pectoris, no obstruction of the coronaries is found; but in most fatal cases there is some change in the coronary arteries and myocardial degeneration. These changes, however, are not the cause of the pain, but are one of the chief factors of death during the disease. Often the rhythm of the heart is unchanged and the blood pressure is not affected by the painful attacks.

As to the immediate cause of the pain, there are convincing arguments to show that it is not due to cramp of the heart, to distention of the left ventricle, or to undue systolic effort. The experience of X leads me to coincide fully with these views. The pains seem to result from an exalted state of the sensory paths, which appear to be along the aorta and larger arteries. Arteries, whether inflamed or not, are capable of pain, as shown in embolism and on compression for aneurysms, and angina is usually the result of inflammation in the aorta and larger arteries. From his own sensation, X feels that much of his pain comes from this source, as indicated by the sudden feeling of distention and by the location of the pain. The suprasigmoid portion of the aorta is probably the most sensitive, angina resulting when the fibrous outer investment is reached. The fact that the use of iodids sometimes stops the horrible pain of aneurysm, and also often stops pain in angina, indicates that the pain in these two affections may be due to the same cause. Tension of fibrous structures in any part of the body may cause pain, and this tension is the principal factor in angina pectoris. At the base of the heart there is most likely a point of exalted sensibility to blood pressure. Perhaps all arteries have their degrees of sensibility to blood pressure.

If, as maintained by some, the disease results from an affection of the coronary arteries with degeneration of the myocardium, it is difficult to understand why the heart's action is commonly almost normal, and why the pain usually referred to the precordial region is commonly felt over the aorta and radiates along the course of the larger arteries. The theory that the real seat of the disease is usually in the arterial walls and often in the external coat accounts for the incidence of the pain much better than the older theory.

SYMPTOMATOLOGY

The physical signs are not characteristic, but often there is moderate enlargement of the aorta and enlargement of the heart in many cases. There may be an aortic murmur and the rhythm of the heart may be affected, but all these symptoms may be absent.

The blood pressure may be excessive, but usually it is not affected. The pulse commonly remains nearly normal, but often, although regular, it may run as low as 40 or 50, and it has been observed as low as 21 per minute. I recall three cases of abnormally slow pulse seen at nearly the same time with nothing in common but the pain.

Profuse sweating is not an uncommon symptom, and salivation occasionally occurs.

Fever may sometimes be present from the acute aortitis. The face may be pale, flushed or normal.

There may be restlessness and tremors.

Flatulence and gaseous eructations are generally present.

Dyspnea is not a characteristic feature, but when the heart muscle is weak, it is likely to be present.

The pain in angina is usually paroxysmal, rarely a steady grind. It may increase from slight to extreme anguish. It may be short and sharp for an instant only, but it usually lasts from several minutes to half an hour or more, and occasionally continues much of the time for days. Sometimes it is confined to the chest; at other times it radiates to one or the other arm, rarely to the thigh. It is located sometimes in the neck and occasionally in the throat or larynx. It is sometimes felt on the radial side of the arms and may run down to the thumb. In some erratic cases, the pain may be confined to the periphery, as to the palm of the hand, or to a finger, and in one of my cases it was often felt in the rim of the ears. It may also be felt in the epigastrium, the apex of the heart or the abdomen. There are some cases in which the patient has a horror but an absence of pain. Angina without pain (angina sine dolore) is comparatively rare, but may be the cause of death in many of those who die suddenly without symptoms.

The heart pain in angina pectoris is usually said to be precordial; but in reality it is nearly always felt at the upper part of the sternum over the aorta. In one case that I have observed, it started in the region of the left subclavian and was so constant that the patient, a physician, believed there was an aneurysm of this artery. With X it usually started over the brachial artery in the middle of the right arm.

When the aorta is the seat of the lesion, the pain on exertion is likely to radiate to the shoulders, and it generally extends down the left arm, the reason for which proceeding is not apparent. It is sometimes relieved by eructations of gas, and such cases are very likely to be attributed to indigestion. In a few instances paresthesia or even paralysis of the arm follows the attack.

Immobility from a fear to move, or a feeling that one cannot move, is a common symptom. The feeling of impending death or of horror is not a reasonable apprehension, nor yet a fright, but an organic sensation, a feeling as though everything was going and nothing mattered. It may occur in only one or a few of the attacks, and sometimes is altogether absent.

The history of a single case illustrates most of the features of this disease so well that I will present it briefly at this point.

REPORT OF CASE

When 63 years of age, Dr. X suffered a comparatively mild attack of typhoid fever in which the temperature never exceeded 103.5 F. He was not delirious, lost only about 30 pounds in weight, and was confined to his home only three months. He had suffered from no infection nor sickness of any kind for forty years, although since boyhood he had often had rheumatic pains on exposure, and for about fifteen years had gouty pains with enlargements of the joints in one finger after another, each joint remaining tender for about eighteen months. This was a hereditary condition. His parents lived well on into the eighties, and of five brothers and sisters of which he was one, all are still living, the youngest being 55 and the oldest 72 years of age; and all are well except for a chronic gouty condition of the fingers.

Three or four days after leaving his room, he was able to go to his office for an hour daily. For several months he was troubled a good deal with dyspnea, on walking or attempting to carry even light weights. Gradually he regained strength and experienced no pain in the chest until after a brisk walk of about 500 yards in the autumn when he was 64 years of age. When he rested a little and walked slowly this pain subsided, but did not disappear for about twenty minutes. For several years he suffered frequent pains at the middle of the arms directly over the brachial artery, usually on the right side, and occasionally an aching pain in the elbow. The one in the right arm was especially severe sometimes shortly after breakfast or after exercise. These pains he attributed to rheumatism, as they usually occurred with changing weather or whenever he was chilled. He worked hard, but was very temperate in his habits, using no alcoholics, tobacco or coffee, and very little tea. His appetite and digestion were good, and he regulated the amount he ate so as to keep his weight down to the average for his size. He had no pain that he recognized as angina pectoris until the middle of May, 1913, when 64 years of age. For a few days he had found himself getting out of breath easily, and one night while in bed he had a distinct attack of angina pectoris, though not severe enough so that he called any one.

After this, the pain over the aorta came with increasing frequency and severity, so that within a couple of weeks he decided to go to Nauheim, Germany. But while waiting for a steamer he went daily to his office, where he lay on a couch most of the time directing the work of his assistants, unable to walk more than 4 or 5 paces without bringing on the pain. During these four weeks he at times took aspirin to relieve the pain, and several times tried nitroglycerin, but without any relief, probably on account of the fact that the preparation was too old. He also tried amyl nitrite, but without much satisfaction. He took no opiates, as they always disturbed his digestion.

He arrived at Nauheim very weak and unable to walk for more than a few yards without pain. There he took the regular cure of baths, went about all the time for six weeks in a wheel chair, rested an hour and a half or more every day, and had gentle massage of evenings. He felt so cold most of the time that he wore a heavy ulster and was wrapped in blankets all summer long, whenever he was outdoors. After his six weeks' course of treatment, he could walk slowly about 50 feet before the pain would compel him to stop, and after a few minutes could repeat the exertion. He gradually regained strength, so that on his return in the fall he could walk slowly for from 50 to 75 yards on a level, according to the weather, the temperature, etc. A few months later he discovered that fresh hypodermic tablets of nitroglycerin dissolved on the tongue would relieve the pain in two or three minutes, although they might cause dizziness and headache. The same tablets swallowed would not give relief for about ten minutes, and then only about half as much as when dissolved in the mouth. As sodium nitrite and erythrol tetranitrate quickly caused disturbance of his stomach, they could not be taken. At Nauheim he was advised to take theobromin, 15 grains, three times a day; but as he was very sensitive to all medicines, he took only 5-grain doses, and this only five or six times, as it greatly increased the heart pulsations and intermissions. Caffein appeared to make him worse. Strychnin or nux vomica kept him awake, and doses of digitalis sufficient to reduce the pulse to normal seemed to make his pains worse after a short time.

During this period the heart intermitted several times a minute, and the pulse usually ran from 85 to 120. The blood pressure was about 130 to 140 and never was found more than 148.

In the beginning of the disease, X, judging from the suddenness and location of the pain and from the feeling of distention, felt that the trouble must be in the arteries, although he found no confirmation of this theory until he read Allbutt's work four years later. Allbutt argues that pressure on an artery, as in treating aneurysm or an embolus, causes acute pain. X found that after sleeping for an hour or two

on the right side he would sometimes waken with acute pain in the right arm, which would quickly be relieved by his taking nitroglycerin. This seems to support the arterial theory, for there had been nothing during this sleep to disturb the heart except the weight of the body pressing on the right arm. The excessive fatigue which he experienced at times, however, even with no unusual exertion, points sharply to myocardial degeneration.

As the anginous pains came just as the thumb joints were recovering, he suspected that they were of gouty origin, and therefore, for about two years, gave up the use of meat almost completely. Frequent experiments convinced him that the white meat of fowl was to him as injurious as beefsteak or roast beef. Later, on account of the weak myocardium, he returned to the use of meat in moderation.

The pains in this case were brought on by a variety of conditions, such as walking at an ordinary gait on a level, climbing a very slight grade, going up four or five steps, or feeling moderate excitement, pleasurable, or more particularly annoying. A moderately full meal or the act of putting on his shoes after eating, or even of brushing his teeth, or of reaching up to take down his overcoat, or of being in the slightest hurry were all followed by pain.

The sufferer from repeated attacks of angina is usually worse in cold or stormy weather. The latter is not necessarily the result of chilling, for it may and often does occur while the patient is in bed in a warm room. It is apparently due to the subtle meteorological conditions heralded by the pains in chronic rheumatism for hours before an approaching storm.

In the case of X, attacks were brought on by a chilling of the surface, by even slight changes of weather, and once by a wind storm that he encountered when traveling in a warm car. During the blizzard early in January, 1918, X suffered continually for about forty-eight hours with severe angina pains in or under the lower part of the sternum, and in the stomach and arms, when he was not under the influence of large and frequently repeated doses of nitroglycerin. The remedy seemed to be losing its effects, but these pains finally subsided under the influence of heat applied by means of an electric pad, which was kept hot for about twelve hours. During this time, it was sometimes necessary for him to take three or four doses of the nitroglycerin in the course of fifteen minutes, in order to be able to eat even a very light meal. The pain did not return with any severity for several weeks. It often came on while he was eating or addressing a company of his fellows. Indeed, almost anything that increased the rate of the pulse for a few seconds seemed sufficient to cause the pain in the arms or through the shoulders. The same exciting factor carried a trifle further brought the pain over the aorta, or if carried still further, brought on that awful horror which is spoken of as the sense of impending death.

During the pain, even though it was not very severe, he was afraid to move lest it be greatly increased, and once although the nitroglycerin was only 4 or 5 feet away, he hesitated some minutes before he could nerve himself to get it. He carried the tablets in a closely stoppered half-dram bottle in the pockets of every suit, and always had a bottle within easy reach of his bed.

By riding a light motor wheel, he was able to play golf during part of each of the last three summers; but on the days he played, he had to take from ten to twelve 1/100 grain tablets in the course of a couple of hours. He found that frequently on the day after playing, he had no pain, whereas usually he had it several times a day.

In two years, he took three courses of saline baths of the same content as the bath most used at Nauheim. The most important feature of his treatment was an afternoon rest in bed for about two hours daily, with from eight to nine hours' rest at night, his daily work being limited to five or six hours. After the trial of many medicines, he settled down to nitroglycerin as often as needed, taking usually four to ten doses a day, and twice daily arsenous oxid, 1/64 grain with extract of digitalis, 1/6 grain, extract of nux vomica, 1/4 grain, and 1 1/4 grains of chlorbutanol to prevent insomnia. On this plan he has been able to continue his work in the past two years. He feels the pain often and has to take rather more of the nitroglycerin than formerly, but thus far he has found that it relieves the pain very soon if used in sufficient quantities. Recently, apparently on account of an unusual strain for a few seconds, the heart compensation broke, and he was obliged to take a prolonged rest. In spite of the rest, the pains have increased in frequency.

DIAGNOSIS

The diagnosis is usually based on substernal pain radiating to the arm, shoulders or neck, accompanied by a peculiar mental depression or a sense of impending death, aggravated by exertion or even by slight movements; but it may come on, as in the case of X, even during sleep. We should always suspect angina pectoris when pains result from exertion, no matter what their seat, especially in the aged or the syphilitic. The pain is often attributed to indigestion, but we must be suspicious if it is excited by exertion. I have known several men about 65 years old who, while apparently in excellent health, have been suddenly attacked with what the first physician to arrive termed acute indigestion; yet within a few minutes or at most a few hours, they were dead of angina pectoris. I have observed similar cases in which life has been saved by prompt and judicious treatment. When physicians realize that the pain of angina is seldom in the heart as usually described, but that it is commonly under the sternum or along the course of the larger arteries, so that it may even be in the stomach or bowels or other remote parts of the body, such errors and catastrophes will be much less frequent. If we have been taught to expect pain only over the precordia and down the left arm, we are apt to miss the significance of a pain over the upper part of the sternum and in the right arm, and we are much more liable not to recognize the disease when the pain happens to be centered in the epigastrium or even over the lower part of the abdomen.

The relief of pains by nitrites is considered a diagnostic feature; but this is not necessarily the case, for the nitrites do not always give relief, even under the best conditions. It must also be remembered that the nitrites are not effective when the preparation is old. The pains of pseudo-angina are relieved by the nitrites, and it is probable that still other pains may be relieved by these remedies, just as bronchial asthma is often promptly relieved.

It is asserted that angina pectoris in persons under 45 is usually of syphilitic origin. Possibly this is the explanation for the benefit that has sometimes been obtained from arsenic and the iodids. The value of a syphilitic history as a diagnostic point, however, cannot generally be relied on, as very few private patients will admit that they have had the disease if they can avoid the admission.

In pseudo-angina, the symptoms are much like those of the real disease; but the jactitation and absence of that awful feeling of impending death (I do not mean fear of death), together with the history and the position of the pain, usually make a diagnosis reasonably certain. I think that with many of us the crucial test has been found in the result. We have been accustomed to consider that the patient who recovered had an attack of pseudo-angina, whereas we are ready to admit that the one who died had the real thing.

PROGNOSIS

In the milder forms of the disease, suitable care and treatment may prolong life possibly for many years. For myself I know that I had come to think that with real angina pectoris, the first, second or third attack was almost sure to be fatal; but a careful analysis of my own sixty private cases and especially the experience of X, who, several times a day for four and a half years, has suffered more or less severe attacks, many of which might have been serious but for the means of prompt relief, have greatly modified this view. I unfortunately have not the end-results in many of my cases; but of the twenty-eight cases that I classified as pseudo-angina, three patients had already lived four years when my last notes were entered. Of the thirty-one cases in which I had no doubt about the reality of the disease, two patients had lived from one to two years; 3, two years; 4, three years; 4, from three to four years; 1, five years; 1, eight years; 1, twelve years; 1, fifteen years, and 1, thirty years. This would seem to indicate that those with true angina had outlived the pseudo-angina; but as I have records of death in only four cases with true angina and none in pseudo-angina, the figures have no significance as to end-results. They do show, however, that true angina is not nearly as hopeless as we are wont to believe, and that not a few may live to comparatively old age.

Allbutt makes a more hopeful prognosis than most authorities. This should be comforting to those who have experienced the pains and the awful mental depression that accompanies them. He thinks there is no close relation between the danger and the severity of the pain, but the degree of "angor" is the most ominous symptom. Without angor, angina minor may last for years or may even disappear. One of our fellows who had the pains often a few years ago is now quite free of them, although not young, and is very active in his profession. I have seen cases that lasted more than ten years, and I knew intimately one woman who suffered for thirty years, having at times very severe attacks. The celebrated John Hunter suffered from angina pectoris for twenty years before he finally died in an attack. During the four years, X has improved much in some respects, and if he can maintain a corresponding rate of gain for the next fifteen or twenty years, he hopes to be well.

In the majority of fatal cases, death is due to inhibition of the vagus, stung by pain. A fall in blood pressure resulting from mitral disease or from administration of nitrites relieves the vagus and saves life. An aortic murmur in syphilitic cases is of grave importance, indicating rapidly progressing changes. There are no physical signs that aid much in determining the probable duration, except that weakness of the heart sounds is indicative of myocardial changes, which add greatly to the danger. A sound heart can free itself from vagus arrest, but an enfeebled heart may fail. Chronic aortitis may suddenly end in angina pectoris.

TREATMENT

Nitrites are among the most valuable remedies, but they are commonly given in insufficient doses. X found the most satisfactory preparation a hypodermic tablet of nitroglycerin of $\frac{1}{100}$ grain, which was found to act more promptly and effectively than otherwise, when allowed to dissolve on or beneath the tongue. In this way its full effects were experienced in from one to three minutes, whereas, if it had been taken into the stomach, only about half the efficiency was experienced, and it did not appear for about ten minutes. Frequently two or more of these tablets were taken at once, and they were repeated every few minutes until the desired effect was obtained. Often as many as ten or a dozen were taken in two or three hours. As much as 15 to 20 hundredths of a grain three times a day has been recommended in severe cases. A physician told me of one patient who took 100 of the $\frac{1}{100}$ grain nitroglycerin tablets in one day with the effect of relieving a severe angina, and at that time he said the pain had not returned for three years. X usually took four or five of the tablets daily, and when the pain was worse or more persistent, ten or twelve. Frequently after these larger doses he would be entirely free from pain all the next day. From my personal observation, I think these large doses are often needed; and if the physician feels his way with gradually increasing doses, no harm will come from them unless they cause too much headache. Osler thinks nitroglycerin is too timidly used and is then abandoned as ineffective. The preparation should be reasonably fresh, and prescribed in the original package. It may be carried in a small closely stoppered bottle to prevent evaporation, and renewed from the original package every week or two. The patient should be warned of the possible dizziness, the flushing of the face and the headache resulting from its use, and should be assured that these disorders will do no harm. I have found it a good plan to give the patient $\frac{1}{100}$ grain or more at once, so as to learn its effects before he leaves my office. After the susceptibility has been determined, it is best to give a full dose when attacks come on. It may be repeated as often as necessary to accomplish the result, except when it causes too much headache. The headache is sometimes relieved by repeating the dose. This remedy does no harm even from prolonged use. It is of doubtful utility when given only three times a day in the conventional dose of $\frac{1}{100}$ grain.

X did not like amyl nitrite because of its odor, and also because during an attack he found it difficult to dispose of the glass. It is asserted that although this remedy acts quickly it is not as certain as nitroglycerin. The few times that X used it, its effects were practically nil.

Sodium nitrite disturbed his stomach, by the time two or three doses had been taken. This drug seems to have some toxic property. Erythrol tetranitrate caused more headache and did not relieve the pain as promptly as the nitroglycerin, although some patients have found it more satisfactory because of longer duration of its effects.

The heart may be protected against inhibition shock by more or less continuous use of atropin. The dose employed is often too small. As much as 2 mg. or $\frac{3}{100}$ grain may be needed with some adults. In cases of extremely slow pulse, atropin has quickly relieved the inhibition. Calcium lactate is mentioned by some authors as a possible aid to check inhibition.

It is important to inquire into the cause; and if there has been syphilis, the proper treatment should be adopted, as potassium iodid and the arsenical preparations. Arsenic has been used since 1879, and is recommended in small or large doses to forestall the pain. The prolonged use of potassium iodid is said by some to be very effective. I myself have not seen much benefit from these remedies; but in view of the

contention that nearly all cases of angina pectoris in persons less than 45 years old are syphilitic, it is possible that many of them might be benefited by these remedies.

During the attack, if prolonged and severe, morphin, or morphin and atropin, given together hypodermically, are the most common remedies. They are undoubtedly necessary in many cases, but they usually disturb the digestion and make the patient feel bad for two or three days, so that it is much better to give the nitrites first and rely on them when they will answer the purpose. Whisky in quantities of about 3 ounces will also give relief. Hot applications over the sternum, as an electric pad, are sometimes helpful in relieving pain. Balfour recommended chloroform to be inhaled from a wide-mouthed bottle in which about a dram had been placed on a sponge. The bottle was to be held in the patient's hand so that, as he came under the influence of the anesthetic, the bottle would drop and roll away. Allbutt considers chloroform dangerous. I do not know its value from personal experience in angina pectoris, but have found this method of administration very effective and safe in some other painful conditions.

On account of its reputed effect in contracting the arterioles, digitalis is not suited to relieve an acute attack. In those cases in which the heart's action remains practically normal, it is distinctly contraindicated. When the heart's action is feeble, however, this remedy and nux vomica are indicated. The two together will often yield results that cannot be obtained by either one given alone. X tried digitalis repeatedly, but became convinced that at times it made him worse, although he never had high blood pressure. In sixty cases I observed, in which the condition of the heart and pulse was recorded, the heart was apparently normal in thirty-six cases, and the pulse did not exceed 85 in twenty-six cases. In only eleven cases did the myocardium or valves appear to be involved, in only nineteen did the pulse run from 85 to 90, and in only twelve did it run higher than 90 at the time of my examination.

To prevent the attacks, it is of first importance that the patient live a regular life, and avoid over-exertion, mental excitement, chilling of the surface and, indeed, anything that brings on the pain.

Moderation in eating should be enjoined, especially on those who are overweight, and mild measures for reducing the obesity should be instituted. Tobacco, coffee and sometimes even tea should be avoided. Flatulence should be relieved by such remedies as rhubarb, gentian, and the carminatives, as peppermint, cardamom and ginger. The *Bacillus bulgaricus* has been quite effective in preventing flatulence in some persons. The secretions must be free and the bowels must be kept open.

Rest, especially in the early stages or when the attacks recur frequently, is of the utmost importance; but the patient's temperament must be considered, and the physician must not demand what to the patient seems impossible. I am impressed with the idea that rest and diversion with graduated exercise are the greatest factors in the beneficent effects of baths of the type given at Nauheim. Essentially the same baths may be given at home, by adding 9 pounds of sea salt and 10 ounces of commercial calcium chlorid to 40 gallons of water with or without carbonic acid gas. Calcium chlorid is probably the most essential ingredient. The carbonic acid gas appears to me negligible except for its psychic effect. As already pointed out, X improved markedly during his six weeks of treatment at Nauheim, and has continued to improve since. This case yields a hopeful aspect in prognosis and, I think, illustrates some important facts in treatment, the outstanding features of which are avoidance of exciting causes, heart tonics when needed, nitrites given freely to relieve pain, regular temperate habits, and abundant rest. I believe his improvement is due first to the free use of nitroglycerin, partly to the heart tonics he has taken almost continuously, partly to the care in diet, and largely to the hour and a half or two hours' rest every afternoon, added to the eight hours at night.

SUMMARY

The pain in angina pectoris is not usually in the heart and the left arm, but rather along the course of the aorta and larger arteries.

The pain appears, at least in many cases, to have no relation to the condition of the myocardium or to the obstruction of the coronary arteries.

A more hopeful prognosis than that of the usual conception of this disease may be assured under proper care and treatment, *a very important part of which is abundant rest with heart tonics as needed.*

The sublingual administration of fresh hypodermic tablets of nitroglycerin in large amounts to relieve pain is of great value. The failure of nitroglycerin is most often due to the wrong mode of administration, deterioration of the preparation, and inadequacy of the amount.

104 South Michigan Avenue.

PATHOLOGY OF ANGINA PECTORIS*

E. R. LeCOUNT, M.D.

CHICAGO

When sudden occlusion takes place in an artery supplying blood to a place which no other artery can adequately supply, because anastomosis with neighboring arteries is not sufficient, the process is called infarction and the name is generally applied also to the changes which result in the region having its blood supply so interfered with; the lesion produced is an infarct.

There are very few if any arteries which in a strict sense are terminal, that is to say, so terminal that the entire tissue supplied by them must of necessity die when their circulation is obstructed.

Many so-called terminal arteries are so in only a small degree, which means that only part of the region they supply undergoes death by anemic necrosis when they are abruptly occluded. Indeed, the existence of so many different degrees of terminality, if such an expression is allowable, has resulted in a great deal of contention between those who have maintained that arteries for some part of the human body were "end" vessels, and others who with equal vigor have insisted that they are not. Naturally these differences of view have led to experiments of one sort or another, to estimate in some precise way the extent to which the normal circulation in some of these terminal arteries is essential to the healthy life of the region supplied.

Unfortunately for many of these experiments, lower animals have been used; and the conditions for

* Read before the Institute of Medicine of Chicago, March 28, 1918.

some organs at least, only approximate those in the corresponding human organ.

Exception may be taken also to the conclusions founded on conditions ascertained by anatomic studies, the injection of arteries supposed to be terminal to ascertain the extent such injection-masses may be made to penetrate the capillary bed and larger branches of neighboring arteries; for, valuable as these studies are, they do not measure the functional compensation possible by means of such anatomically demonstrable collateral anastomosis; in other words, proof by such methods of collateral communication is not a measure of the degree to which the vessels in question are functionally terminal.

The coronary arteries are virtually the sole route by which arterial blood is supplied to the heart. Because they possess some collateral circulation, and also of course because the maintenance of an adequate supply of blood by these arteries is necessary for life to continue, the amount of such collateral circulation in the human heart, and especially its ability to functionate in a compensatory way, has been subjected to extensive study.

Reference has been made thus far only to sudden occlusion; and it is worthy of comment at this time that experiments with the coronary arteries have practically all dealt with the consequences of obstructing the circulation in one or both of these vessels or their branches, by methods which have abruptly interfered with the circulation.

The relation impaired circulation in the coronary arteries is supposed to have to angina pectoris is, however, not limited to simply sudden or acute obstruction, but is believed to apply equally well to a gradual hindrance extending at times over many years.

It is generally believed that somewhere between sudden occlusion and its results, and such slowly developing obstruction that few or no symptoms develop, lie the lesions responsible for angina pectoris; and because of this I propose to discuss briefly such details as I possess regarding sixty deaths from difficulties with the circulation of blood in the coronary arteries or with lesions generally regarded as caused by such difficulty. These are in two groups: thirty-four deaths from fibrous myocarditis with sclerosis of the coronary arteries, and twenty-six of more or less acute occlusion.

FIBROUS MYOCARDITIS

Only four of thirty-four persons whose deaths from the postmortem examination were found to be due to fibrous myocarditis were in a hospital for any time and ill from heart disease; one for eight hours, with a clinical diagnosis of acute dilatation of the heart; one for 8.50 hours, with a diagnosis of pulmonary tuberculosis; a third, 17.40 hours, with a diagnosis of asthma, and the fourth for 27.50 hours, with a diagnosis of delirium tremens.

Twenty-eight of these thirty-four patients were men and six were women. Three under treatment for other illness and convalescent died suddenly and unexpectedly, eight died en route to the hospital, and eighteen were found dead; and of these last, four fell dead on the street and seven were found dead in bed.

In five of the thirty-four hearts the scars were of such size in the heart muscle that pouching outward had taken place—the so-called chronic parietal aneurysms. In a few the scars replaced so little of the myocardium that, in addition to other examinations, a chemical examination was made for poisons. In four of the thirty-four bodies, gross indications of syphilis were present, in four others there was pulmonary emphysema of the hypertrophic variety, in two the kidneys were markedly diseased—"small red granular kidneys." There was some anasarca or hydrops or both in eight of the thirty-four, obesity in one, and two hearts possessed anomalies, a two-cusped aortic outlet in one and absence of a circumflex branch of the right coronary artery in the other, the corresponding branch of the left coronary being large.

Four of the thirty-four patients were between 30 and 40 years old, eight between 40 and 50, thirteen between 50 and 60, six between 60 and 70, and one over 80 years. It will be noted that the decade for the greatest number was between 50 and 60.

One man, a pedler, aged about 60, came into a saloon and said he wished to rest, and later was found dead in the back room on a couch where he had lain down. The man in the hospital for 8.50 hours said he had been ill for three days, unable to retain anything on his stomach, but also unable to attribute this to any indiscretion in diet. Another was under treatment in the hospital for urethral stricture, went to the toilet, and on returning dropped dead at the bedside.

Another found sick on the street by a policeman died soon after being taken into a barber shop. Another dropped dead shoveling sand; one died suddenly in a police cell; one of the six women dropped dead when prepared to leave her work in the Psychopathic Hospital, where she worked nights; she had just dressed to leave. Another woman fell dead on the street, and a third woman died suddenly in a drug-store.

ACUTE CORONARY OBSTRUCTION

Of twenty-six persons who died with acute or suddenly developing obstruction of the coronary arteries, eighteen were men and eight women. Of these the age of the greatest number in any single period of ten years is two decades earlier than those with the fibrous myocarditis, one being in the 20 to 30 decade, eight between 30 and 40, six between 40 and 50, six also between 50 and 60, three between 60 and 70, and two 71 years old or over. This earlier age for the largest number in any one decade is no doubt connected with syphilis, for in eleven of the twenty-six bodies, changes usually regarded as indicative of syphilis were found, whereas with the thirty-four deaths from fibrous myocarditis, only four were of persons whose bodies possessed such alterations. Of the twenty-six patients, five died in the examining room, five were found dead, and one died en route to the hospital.

The obstruction of the coronary circulation of these twenty-six persons was in most instances thrombosis; in one instance embolism was associated with thrombo-ulcerative mitral endocarditis, and embolic hemorrhages were present in the skin and bowel as well. In another heart acute dissection of the wall of the circumflex branch of the left coronary artery was associated with a minute sacculated aneurysm at the same place. In a third the coronary artery broke open and the blood from it found at the postmortem examination in the pericardial sac weighed 560 gm. In four others, syphilis of the root of the aorta had obstructed the coronary circulation at the mouths of the arteries. One of these was interesting in that a small globular clot formed where the intima of the aortic root was altered from syphilis, had obstructed the mouth of the

left coronary artery completely. Another concerned a pregnant housewife only 21 years of age.

In another heart the obstruction was apparently due to calcareous masses which were partly loosened in the channel by softening of patches of atheroma of which they were a part. This man, aged 60, had become acutely ill, and was on his way to the hospital without aid. He had almost arrived when overcome. He died in the examining room. In addition to the obstruction with loose lime masses and the infarction of the myocardium, the anterior papillary muscle was found greatly atrophied and shrunken, there was some fibrous myocarditis, and the heart weighed 455 gm.

Mention has been made of a small saccular aneurysm of the branch of the left coronary artery, which runs around the heart referred to here as the circumflex branch, and its association with acute dissection of the artery wall at the same site. In two other hearts the obstruction was similarly located, once in the left circumflex branch and once in the right.

The regions of infarction in these hearts were for the most part large and easily found; many were, as is commonly known to be the case, considerable distances away from the place where the artery was occluded or the circulation otherwise interfered with. Infarcts of the myocardium are frequently multiple, and sometimes small and widely scattered.

In one of these twenty-six hearts the place softened by anemic necrosis broke so that the pericardial sac filled with blood; in several, acute outpouching in varying degrees was present; in many, mural thrombi had formed on the necrotic lining. Small, delicate deposits of fibrin on or in the epicardium of the place infarcted was not uncommon.

These twenty-six deaths from more or less acute obstruction of the coronary circulation are the only ones of 175 deaths from heart disease with which I have found associated symptoms suggestive of angina pectoris.[1] Fifteen of the twenty-six were patients for a short time. The shortest period under observation was 1.15 hours, and the longest, 52.20 hours.

The diagnoses made in these short periods are of interest. Twice the diagnosis of angina pectoris was made; for two others, acute dilatation of the heart; for one, edema of the lungs; for two, lobar pneumonia; and once each, pulmonary tuberculosis, acute gastritis, intestinal obstruction and carcinoma of the stomach.

One of these acute coronary obstructions had to do with the heart of a man found dead seated in a chair. He had been ill two months and under the care of a surgeon well known to us all whose diagnosis of gallstones I have in a letter in answer to one of inquiry sent him. I found no gallstones, and there had been no operation. The following are brief synopses of single cases:

Time under observation, 26.10 hours. An elevator man, aged 61. Illness began five days before entrance with a sudden pain in the chest which spread to each side and was increased by deep inspiration. There was vomiting at intervals during these five days.

Time under observation, 16.20 hours. Age, 30; Italian. Three days before death there was pain in the lower chest and abdomen with vomiting. The respirations were from 32 to 40. The pulse was too fast to count. The clinical diagnosis was lobar pneumonia.

Time under observation, 52.20 hours. A German woman, aged 43, a nurse. Illness began two and a half days before death with pain of the back of the neck, front of the neck and across the chest pronounced neuralgia by one physician, and heart disease by another. In the hospital the pain was all on the left side and involved the neck, both extremities and the left side of the chest. The clinical diagnosis was angina pectoris.

Time under observation, 28.15 hours. Woman, aged 50, housewife. Illness began five days before with vomiting one and a half hours after eating a heavy meal, and severe cramplike pains of the epigastrium persisting during the five days.

Time under observation, 8.30 hours. Man, aged 35, became ill twenty-two days before death after working fourteen hours without food in a brickyard, with pain in the chest and shortness of breath, and vomiting for several days shortly after eating. When in the hospital he did not have much pain, but spat up a blood-stained froth and was very cyanotic. The clinical diagnosis was edema of the lungs.

Time in the hospital, 20.15 hours. Man, aged 53, telegraph operator. While walking two weeks before death his illness began suddenly with a severe pain in the chest, and he was obliged to stand still or lean against something for support and gasp for breath. This lasted only a few minutes, but was repeated three or four times in walking a block. Four days before coming to the hospital he had a similar attack in bed, and a physician came and gave him a hypodermic and he had suffered but little pain since; but the shortness of breath persisted and remained worse on slight exertion during all the two weeks. The clinical diagnosis was angina pectoris.

COMMENT

It may be assumed that none of these sixty persons suffered from angina pectoris, that there are no reliable accounts of the angor said to be associated with a sense of impending death or that many were examples of pseudo or mock angina. I have no answer to such assertions unless it be to state that in all likelihood many die from true angina in a first attack and that some people with true angina suffer as others do but without any realization that death is at hand; no doubt people vary as to their ability to discriminate with regard to the likelihood of death ending their distress and with regard to their fear of death.

As to the contention by Allbutt that the lesions are not located in the coronary arteries but in either functional or structural alterations of the aorta, I may remind you that anatomists have always debated somewhat as to where the heart ends and the aorta begins, where the boundary line between them lies.

Since the lower part of the aorta as well as of the pulmonary artery receives its blood supply from small branches of the coronary arteries, which, passing up, anastomose with similar vasa vasorum from the bronchial and pericardial arteries, it perhaps may be best to regard the proximal few centimeters of both of these large arterial trunks as a portion of the heart.

It is not unlikely that with sclerosis of the coronary arteries a difficulty exists in maintaining an adequate supply of arterial blood to the proximal parts of these arteries, a difficulty which is concerned with insufficient anastomosis with the other vasa vasorum which come down from the bronchial and pericardial arteries; indeed, these last vessels may also be the seat of sclerosis.

With these conditions in mind, it is easy to conceive of these branches of the coronary arteries which supply arterial blood to the roots of the pulmonary artery and aorta as end arteries in much the same way as their chief branches to the myocardium are terminal, and to remember that, although a collateral anastomosis exists in the heart between the two coronary arteries and also between the coronary vasa vasorum of the aorta and other vasa vasorum to the

1. These 175 necropsies were all medico-legal, a part of inquiries necessary because the deaths were unexpected, or because of an absence of medical attention sufficient to ascertain the nature of the illness.

aorta from the pericardial and bronchial arteries, with sclerosis or with more acutely developing obstruction from other causes, the compensatory circulation may prove inadequate or may not be promptly enough established to prevent either angina pectoris with death, or death so unexpectedly that there is no opportunity to determine whether symptoms of angina did or did not occur.

[NOTE.—This and the paper by Dr. Ingals which precedes it are part of a symposium on angina pectoris read before the Institute of Medicine of Chicago. Abstracts of the remaining papers appear in the society proceedings in this issue of THE JOURNAL.—ED.]

ARE DIPHTHEROIDS A FACTOR IN FEMALE STERILITY?

T. C. STELLWAGEN, JR., M.D.
Assistant Professor of Genito-Urinary Surgery, Jefferson Medical College
AND
P. S. PELOUZE, M.D.
Assistant Genito-Urinary Surgeon, Genito-Urinary Dispensary, University of Pennsylvania Hospital
PHILADELPHIA

The problem of sterility is of great importance to the human race. This is especially true at the present time when the flower of manhood and womanhood is being destroyed or maimed by war. We believe that the question of sterility does not receive sufficient study from investigators. With the dawn of peace will come the problem of the rehabilitation of mankind, and we feel that any procedure that offers assistance to humanity should be discussed. On matters of such magnitude as generation, we believe we shall be pardoned if we submit a single rather striking case for consideration. We aim to place before the profession a clinicolaboratory experience, hoping thereby to induce investigators of greater ability to study along this line. Valuable work has been done on the bacterial flora of the female genitalia. Little, if any, appears to have been done to ascertain the possible effects of such flora on procreation.

It is with the foregoing ideas that we report this case, presenting apparently important phases.

In the fall of 1916, Dr. X, a dentist, presented himself for study as to the cause of an anterior urethral discharge. In the history he stated that he had been married seven years, during which period he had never had any urethral discharge, nor had there been any extramarital exposure.

A study of his discharge showed it to be very largely composed of pus cells and epithelial elements. The only bacterium present was of the Hoffmann type of the pseudodiphtheria bacillus. This was obtained in pure culture from the anterior discharge and also from the prostatic secretion. He was given the usual routine local treatment for such conditions. He improved and the anterior discharge became scanty and at times disappeared. The prostatic secretion, however, still presented numerous leukocytes and organisms. The condition of the prostatic secretion and its tendency to remain in statu quo led us to reinforce our local treatment by an autogenous vaccine. Under the added impulse of vaccine therapy, the prostatic secretion became normal. At the time of making the vaccine, we deemed it wise to study the bacterial flora of the wife's genital tract with a view to determining the source of his infection and thereby obviating the possibility of future attacks. This study particularly appealed to us because of the fact that, some time previous, she had been under the care of an eminent gynecologist for a year and a half, for the purpose of correcting an apparent sterility. During this period, she had been given intravaginal medication, dilatation and curettage, and had undergone an abdominal operation for the correction of a malposed uterus. These procedures, however, failed to bring about conception, though the husband's seminal fluid contained countless numbers of very motile spermatozoa.

Our study showed that there was a complete absence of vaginal discharge. Cultures were taken from the wife's genital tract. Those from the vaginal vault presented the usual flora, with a preponderance of diphtheroids.

The cultures from the cervical canal proved to be purely diphtheroids. From a five-day growth of these bacilli, it was possible to demonstrate almost all the Westbrook types of the diphtheria bacillus, with many striking metachromatic forms. Separate autogenous vaccines were made and used on the husband and wife. Both patients canvalesced promptly with a virtual disappearance of the diphtheroids.

About three months after their dismissal, the husband returned for examination and was found free from his former infection. He was gratified to relate that he thought his wife was two months pregnant and wished us to refer him to an obstetrician for confirmation of the surmise. This was done and a positive report returned. Nov. 20, 1917, she gave birth to a healthy girl baby.

We have since had an opportunity to study bacteriologically two cases of female sterility. In one of them a pure culture of diphtheroids was obtained from the cervical canal. In the other, studied for Dr. Alexander Randall, there was a mixed culture in which diphtheroids predominated. These patients are now under treatment with autogenous vaccines in distant cities, but it is as yet too early to make a further report on their progress. We know that we have proved nothing by our meager experience, but we feel that it may encourage further study.

1831 Chestnut Street.

THE FORMATION AND COMPOSITION OF THE CEREBROSPINAL FLUID

A SIMPLE METHOD OF DETECTING ACIDOSIS AND DETERMINING HYDROGEN ION CONCENTRATION *

J. F. McCLENDON, PH.D.
MINNEAPOLIS

THE CEREBROSPINAL FLUID

The view has been repeatedly expressed that the spinal fluid is a secretion and its composition more or less independent of the composition of the blood, but the experiments described in this paper do not favor this view. The spinal fluid is not an ordinary filtrate, such as lymph, since it is almost free from proteins, in health. It may be, however, an ultrafiltrate. Bechhold impregnated filters with colloids so that they became impermeable to proteins, and he called the apparatus an ultrafilter since it filtered out ultramicroscopic colloid particles. It seemed advisable to compare the ultrafiltrate of blood plasma with spinal fluid. The apparatus was prepared as follows: An alundum extraction shell of the finest grade was heated in a blast lamp to remove all organic matter and washed in distilled water several days to remove soluble substances. It was dried, and a perforated rubber stopper was inserted in the open end. The shell and part of the rubber stopper were coated with a solution of collodion and rotated until the smell of ether was faint, and then placed in distilled water until needed. The ultrafilter thus formed was drained and immersed

* From the Physiological Laboratory of the University of Minnesota Medical School.

in dog's oxalated plasma, and the perforation in the rubber stopper was connected with a suction pump and a pressure of about 380 mm. was applied. After a few cubic centimeters of filtrate had collected inside the filter, it was removed through the perforation in the stopper and the filtration continued.

The plasma had been diluted with potassium oxalate solution, and its alkaline reserve was 0.018 normal as determined by titration in the rotating hydrogen electrode.[1] The alkaline reserve of the ultrafiltrate was 0.016 normal by the same method, or roughly 10 per cent. less. The alkaline reserve of the spinal fluid was found to be about 10 per cent. less than that of undiluted plasma. The possible explanation of this difference is that 10 per cent. of the alkaline reserve of plasma is in the form of sodium albuminate, which will not pass the filter, and 90 per cent. in the form of sodium bicarbonate, which passes freely.

The freezing point of the plasma was — 0.66 C., and of the filtrate — 0.62 C., or a difference of 0.04 degree, which corresponds to a difference in osmotic pressure of 380 mm., which was the difference in pressure on the two sides of the filter membrane. If the spinal fluid is an ultrafiltrate, the difference in pressure on the two sides of the filter membrane is the difference

TABLE 1.—COMPARISON OF THE CONTENT OF THE SPINAL FLUID AND THE PLASMA

Substance	Parts per Thousand in Spinal Fluid	Blood Plasma
Glucose	1.3 to 2 (Mott)	0.6 to 2
Urea	About 0.4	About 0.4
Total inorganic salts.	8.78 (Halliburton)	8.574 (Carl Schmidt)
Sodium chlorid	7 (Harding and Mason)	6 (Harding and Mason)
Potassium chlorid	0.28 (Halliburton)	
Diffusible calcium	0.05 (Halverson and Bergeim)	0.07 (Rona)
(Alkaline reserve) Calculate sodium bicarbonate	(0.0275 normal) 2.3	(0.03 normal) 2.3
Total carbon dioxid. (Oxygen tension)	About 600 (Mott) (27 to 115 mm. calc. from Mott)	About 600 (40 to 115 mm.)

between the capillary blood pressure and the pressure of the spinal fluid, and is very small. In support of this supposition is the fact that the difference between the freezing points of human blood and spinal fluid is very small. The freezing point of human blood is usually — 0.56 C., but may vary from — 0.48 to — 0.62. I found the freezing point of one sample of human spinal fluid to be — 0.56, and Mott found variations from — 0.51 to — 0.56. If the spinal fluid is an ultrafiltrate of blood plasma, the concentration of sugar, urea and diffusible salts should be the same in each at the place of formation; but subsequently, sugar might be decreased and urea increased in the spinal fluid, as a result of metabolism of nerve tissue. This condition seems to exist, as shown by Table 1, which also shows that the dissolved gases are similar in concentration.

It seems probable, therefore, that the spinal fluid is formed primarily by ultrafiltration, and that to this filtrate the secretions of cells may be added. The high protein content in disease may be explained by the supposition that the disease causes leakage of the filter, thus allowing protein, and sometimes cells, to pass through. The pressure of the spinal fluid might indicate whether or not the leakage came partly from the arterioles.

1. McClendon, J. F.: Jour. Biol. Chem., 1917, **30**, 265.

If the spinal fluid is an ultrafiltrate of the blood, or is in diffusible relation with it, any change in the alkaline reserve of the blood plasma should cause a change, in the same direction, in the spinal fluid. To test this, two normal dogs were etherized and into one of them hydrochloric acid was injected intravenously until death occurred. The skulls of the dogs were opened and spinal fluid taken from the region of the fourth ventricle. The alkaline reserve of the spinal fluid of

TABLE 2.—CHANGES IN ALKALINE RESERVE OF SPINAL FLUID OF DOGS

Method Used to Quiet Dog	Alkaline Reserve of Spinal Fluid
Morphin	0.026
Curare	0.022
Death by bleeding	0.023

the normal dog was 0.0225 normal and that of the dog in experimental acidosis, 0.02 normal. Since a lowering of the alkaline reserve of the blood plasma lowers that of the spinal fluid, how much more easily must it lower that of the lymph and the tissue fluids. The alkaline reserve of the cells of the body may be lowered also. The injected dog weighed about 26 kg. Let us assume that the volume of the dog was 25 liters. It was injected with 500 c.c. of tenth-normal hydrochloric acid (in physiologic sodium chlorid solution) and 250 c.c. of 0.2 normal hydrochloric acid (in the same solvent), or the equivalent of one liter tenth-normal hydrochloric acid. This should have lowered the alkaline reserve of its body 0.004 normal. The alkaline reserve of the spinal fluid was lowered 0.0025 normal, but if the dog had lived until a more perfect equilibrium was established between blood and spinal fluid, the lowering of the alkaline reserve in the latter would probably have been much greater. The dog died about one hour after the injection was begun.

It has been stated by Henderson and Cannon that the alkaline reserve of the blood plasma is changed by drugs and by shock, and Cavazzani found similar changes in the alkaline reserve of spinal fluid of dogs as set forth in Table 2.

He found the alkaline reserve of spinal fluid of rabbits to be from 0.021 to 0.025, and of an ox, 0.026.

TABLE 3.—DETERMINATIONS OF ALKALINE RESERVES IN THE SPINAL FLUID OF PATIENTS

Case No.	Alkaline Reserve	Diagnosis
1	0.015	Diabetes
2	0.023	Tabes dorsalis
3	0.025	Sciatica
4	0.026	Myasthenia gravis
5	0.026	Cerebrospinal syphilis
6	0.027	Hysteria
7	0.027	Syphilis (Wassermann negative on spinal fluid)
8	0.027	Nephritis
9	0.027	Neurosis
10	0.027	Neurasthenia
11	0.0275	Nephritis
12	0.0275	Tabes dorsalis
12	0.0275	Tabes dorsalis
2	0.0275	Tabes dorsalis
13	0.0275	Mitral stenosis
14	0.028	Epilepsy
15	0.030	Diabetes

Mott found that the alkaline reserve of human spinal fluid was usually 0.0275.

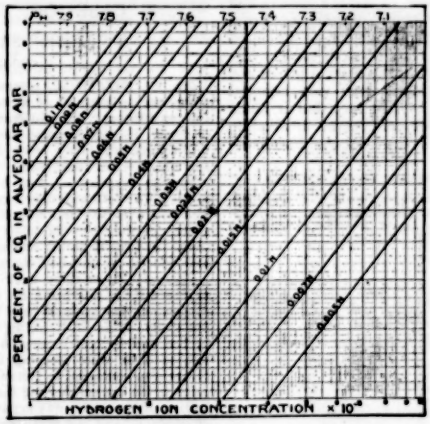
My determinations of the alkaline reserve of the spinal fluid of patients in the University Hospital are shown in Table 3. It may be noted that nearly all cases show that the alkaline reserve is 0.027 or 0.0275 without reference to disease. The few cases of dia-

betes do not admit of certain conclusions except that the alkaline reserve was very variable. This was also shown in alveolar carbon dioxid and blood plasma combined carbon dioxid.

METHOD OF TITRATION OF CEREBROSPINAL FLUID, AND OTHER METHODS FOR DETECTION OF ACIDOSIS

Since a lowering of the alkaline reserve of the blood causes a lowering of that of the spinal fluid, any dangerous degree of acidosis, that is, the lowering of the alkaline reserve of the whole body, should cause a noticeable change in the spinal fluid. Cavazzani and Mott titrated the spinal fluid and at least their later titrations were probably done properly, but they do not make it clear that errors due to proteins or to carbon dioxid were avoided.

I developed an electrometric method for titrating the alkaline reserve of blood plasma.[2] In applying this method to the spinal fluid, I found that the proteins are so low in concentration that it is possible to titrate the fluid with a suitable indicator. The indicator chosen must show a sharp color change at a reaction just on the acid side of the neutral point, in order to be sensitive and avoid any errors due to carbon dioxid, and must be relatively little affected by proteins and other substances. It is, however, impossible to find an indicator that is not rendered worthless by as large an amount of protein as occurs in the blood plasma. It was found that dibromorthocresolsulphonephthalein is admirable in the titration of spinal fluid into which no hemorrhage has taken place, whereas it is worthless in the titration of blood plasma. The method is as follows:



Conversion table.

One c.c. of spinal fluid is carefully measured in a volumetric pipet and run into a porcelain dish. Enough of an alcoholic solution of the indicator is added to turn it a distinct purple. The buret is improvised out of a 1 c.c. pipet, graduated in hundredths of a cubic centimeter. To the lower end of the pipet is attached a short piece of rubber tubing of 1 mm. bore. Into the lower end of the rubber tubing a piece of small glass tubing is inserted. The glass tubing is drawn out in a flame to a capillary tip. The rubber tubing is closed by means of a small clip, of the type of crossed forceps or the bull dog or the Langenbeck clip. When the titration is made the buret is filled with tenth-normal hydrochloric acid. The acid is run in, a small portion at a time, and is mixed with the spinal fluid by being shaken in the porcelain dish until the color changes to yellow. It will be noted that the purple color may return on further agitation and that the end-point is reached only when the purple fails to return. In order to reach the end-point exactly, I find it necessary to split drops. That is to say, the drops that fall by gravity are too large; and when a very small drop of hydrochloric acid is allowed to form on the tip of the glass tubing, it is transferred by touching the porcelain dish a short distance above the surface of the spinal fluid, and then is thoroughly mixed by agitation of the dish.

The results are put down as in the ordinary titration of an alkali with tenth-normal hydrochloric acid; for instance, ordinarily 1 c.c. of spinal fluid requires 0.275 c.c. of tenth-normal hydrochloric acid. In other words, the spinal fluid is 0.0275 normal in "alkalinity" or, as is more properly stated, in "alkaline reserve." This alkali exists almost entirely in the form of sodium bicarbonate, and therefore during the titration, the fluid must be agitated until the carbon dioxid is expelled before the titration is complete. It is unnecessary, however, to boil in order to expel carbon dioxid.

There are several methods of determining the alkaline reserve of body fluids containing protein. The titration method[3] gives results in the same terms as those given in the foregoing. The method of Van Slyke gives the results in terms of combined carbon dioxid. In order to reduce these results to normality (N) of bicarbonate, it is only necessary to know that the carbon dioxid combined in 1 c.c. of a normal (1 N) solution of sodium bicarbonate occupies 22.4 c.c. at standard temperature and pressure. When the Van Slyke apparatus is used, however, it is possible to determine either the combined or the total carbon dioxid in the blood plasma or other fluid. These differ slightly from one another (by about 4 c.c.). Table 4 may be used to give the results obtained by the different methods in terms of one another. In the first column are given the results by the titration method, in the second column, the so-called combined carbon dioxid, and in the third column, the total carbon dioxid after saturation at 42 mm. partial pressure and 20 C.

Table 4 is supposed to be correct within 10 per cent. As stated in the foregoing, the sodium bicarbonate of plasma and the spinal fluid seem to be the same, but the plasma seems to have 10 per cent. more reserve in the form of sodium albuminate. This would cause the carbon dioxid of the plasma to be 10 per cent. less than that of spinal fluid of the same alkaline reserve, but this seems not to be the case. I have found the alkaline reserve of plasma to be about 0.03 normal (corresponding to 67 c.c. of combined carbon dioxid), and Van Slyke states that the combined carbon dioxid of plasma is 65 per cent. instead of 61 per cent., as would be expected. It seems possible that about 3 per cent. of the carbon dioxid is loosely combined with

2. McClendon, J. F.: Jour. Biol. Chem., 1918, **33**, 19.

colloids of the plasma by adsorption or loose chemical union. Because of technical errors in the methods, separate tables for spinal fluid and plasma are hardly worth while.

HYDROGEN ION CONCENTRATION

Owing to the frequency of technical errors in taking samples or determining hydrogen ion concentration of blood or spinal fluid, the results very seldom have anything like the accuracy that is possible if unlimited time is taken to achieve the greatest accuracy. I have found that the use of the conversion table shown in the accompanying chart gives much more reliable results than those usually obtained by any direct method. The table is not absolutely correct. If it were correct in one part for blood plasma, it would not be absolutely correct for spinal fluid; but the difference would be less than the error, often vitiating direct determinations.

The method is based on the assumption that the hydrogen ion concentration of blood and spinal fluid is the same as that of a solution of sodium chlorid and sodium bicarbonate of the same osmotic pressure, alkaline reserve and carbon dioxid tension as the blood or the spinal fluid. The peculiar form of the conversion table was arrived at empirically after a prolonged study of bicarbonate solutions,[1] and was adapted empirically to blood plasma.[2] The fact that it holds for spinal fluid within 10 per cent. error in alkaline reserve and technical errors in the hydrogen ion determination follows for the reason that the alkaline reserve, carbon dioxid tension, and hydrogen ion concentration of blood plasma and spinal fluid in the same person are practically the same; or more definitely, the alkaline reserve differs by about 10 per cent. The carbon dioxid tension is about the same, since the alkaline reserve is about the same and the total carbon dioxid about the same. The hydrogen ion concentration can be calculated from the p_H (— log hydrogen ion concentration) and since the p_H is about the same for spinal fluid and blood, the hydrogen ion concentration is about the same. The p_H of blood is about 7.45. Felton, Hussey and Bayne-Jones,[4] using the colorimetric method, found the p_H of spinal fluid to vary between 7.4 and 7.6. If this method is used with spinal fluid, 0.1 should be subtracted from the reading on account of salt error, and a further subtraction would be desirable on account of protein error, and loss of carbon dioxid from the spinal fluid. The error in reading the color may be nearly 0.1, and the error in making the standard, greater than 0.1. It seems evident that the difference in the reports of the p_H of blood and spinal fluid is within the limits of error where no corrections have been applied.

TABLE 4.—ALKALINE RESERVE (BICARBONATE)

Titration Normal	Volume Per Cent. Total Carbon Dioxid	Volume Per Cent. Combined Carbon Dioxid
0.010	27	22
0.012	31	27
0.014	35	31
0.016	40	36
0.018	45	40
0.020	49	45
0.022	53	49
0.024	58	54
0.026	62	58
0.028	67	63
0.030	71	67
0.032	76	72
0.034	80	76
0.036	84	81
0.038	89	85
0.040	93	90

In using the conversion table shown in the chart, it is assumed that the carbon dioxid tension of the blood and the spinal fluid is the same as that of the alveolar air as determined by any method that may be chosen. The alkaline reserve is determined by titrating the spinal fluid and the diagonal of this alkaline reserve found in the chart. The alveolar carbon dioxid is measured on the ordinate with a pair of dividers, which are moved to the right until their upper point falls on the alkaline reserve diagonal. At their lower point, the hydrogen ion concentration of spinal fluid (and blood) may be read off. The p_H may be found by following the vertical line from the hydrogen ion concentration to the top of the page.[5]

3. McClendon, J. F.; Shedlov, A., and Thomson, W.: Jour. Biol. Chem., 1917, 31, 519.

4. Felton, L. D.; Hussey, R. G., and Bayne-Jones, S.: The Reaction of the Cerebrospinal Fluid, Arch. Int. Med., June, 1917, p. 1085.

A CASE OF TIN POISONING*

MOSES SALZER, M.D.
CINCINNATI

Jan. 29, 1917, H. M., a traveling salesman, aged 59, consulted me on account of a feeling of coldness or chilliness and sore throat. He said that he had felt chilly for a week or more. His temperature was 102.5, and his throat was red. His tongue was very much coated. He had a full upper and lower set of false teeth. The physical examination was otherwise negative. I sent him home and told him to go to bed. The following day I called on him. His temperature was still over 102, and both tonsils were covered with white spots. A diagnosis of acute tonsillitis was made at this time. In four days his temperature was normal, his throat had cleared up, and I discharged him as cured.

February 21, or three weeks later, he again consulted me, saying that he was not a bit better and that he had had to discontinue his business trip because he felt bad. He still felt chilly. This chilly feeling would be relieved occasionally by hot flashes. On arising in the morning, he said that he felt as if he were stepping into a tub of ice-water. His throat also continued to annoy him. He had indefinite, vague pains in his extremities and the back of his head. The examination of his throat was negative. He said that this feeling of coldness was so persistent and annoying that he was unable to eat, sleep or attend to his business. His tongue was still heavily coated. His blood showed 3,500,000 reds, 6,200 whites, and 70 per cent. hemoglobin, but there were no morphologic changes. Repeated examination failed to reveal anything outside of this slight anemia. The Wassermann and Hecht-Weinberg tests were negative.

March 3, Dr. Roger S. Morris saw him in consultation, and was unable to throw any further light on the case. We both agreed that the condition was one of simple anemia following the attack of fever and sore throat in January, and advised that he go to Old Point Comfort for a rest. He did not go, but continued to consult me daily or oftener. His chief complaints were the feeling of coldness and the soreness in his throat. Drs. Iglauer and Allen both examined his throat, and their findings were negative. His temperature was always normal.

March 22, he returned with the same complaints, coldness, irritation or pain in his throat, and indefinite pains in his legs, arms and head. I examined his throat again but found

5. In addition to the references already given, the following will be found of interest:
Cavazzani: Arch. Ital. Biol., 1902, 37, 30.
Cullen and Ellis: Jour. Biol. Chem., 1915, 20, 511.
Harding and Mason: Jour. Biol. Chem., 1917, 31, 55.
Hurwitz, S. H., and Tranter, C. L.: On the Reaction of the Cerebrospinal Fluid, Arch. Int. Med., May, 1916, p. 828.
Rona: Biochem. Ztschr., 1913, 49, 370.

* Read before the Academy of Medicine, Cincinnati, Feb. 25, 1918.

nothing. I told him, however, that I would touch his throat up with some silver nitrate. He then took out his lower set of teeth and, seeing that they attracted my attention, he said that the teeth were set in tin. This statement was confirmed by his dentist, who stated that the plate was made of Watt's metal, which is two-thirds tin and one-third bismuth. Immediately the possibility that the case was one of tin poisoning flashed through my mind, although I had never heard of such a case. I reasoned, however, that if other heavy metals could produce poisoning, possibly tin also could do so. The patient had been wearing this lower set since Dec. 11, 1916, or about one month before the symptoms began. I told him not to wear the lower set of teeth, which showed evidence of corrosion in spots, until I had had an opportunity of looking up the literature on the subject.

The literature abounds in references to so-called tin poisoning in which tinned foods were partaken of. The symptoms in these cases were confined to the gastro-intestinal tract and were those of an acute poisoning. I was able to find references to only two cases in which tin had been absorbed and had given rise to constitutional disturbances, and one of these was reported by Jolles' in 1901. His patient showed constitutional disturbances due to wearing silk stockings impregnated with tin salts. In this case the predominating, outstanding symptom was this feeling of coldness which my patient complained of. Jolles proved that his was a true case of tin poisoning by finding tin in the urine of his patient.

In my own patient the urine passed on the day following the discontinuance of the wearing of the plate contained traces of tin. No other specimens of the urine showed any traces. The patient was placed on a diet free from canned foods, and a few days later the stool was examined. Approximately 5 gm. of dried stool contained 0.0021 gm. of metallic tin. Several subsequent examinations of the stool showed the presence of tin.

April 6, 1917, or fifteen days after the patient had discontinued wearing the plate, 13 c.c. of the blood contained 0.0015 gm. of tin. No other foreign metals were found in the blood. The patient still complained of the same symptoms, although they had ameliorated somewhat. The coating from his tongue had almost disappeared. Considering the marked affinity of tin for proteins, it is not remarkable that the symptoms continued. I prescribed potassium iodid then, and on the 13th of April, or one week later, 20 c.c. of his blood contained only 0.0005 gm. of tin, showing that more than two thirds of the tin had been eliminated during the week. No subsequent examination of the blood, urine or feces showed any traces of tin. The anemia gradually cleared up.

The chemical analyses in this case were made by Mr. F. C. Broeman, consulting chemist, and also by Mr. Clarence Bahlman of the Cincinnati Department of Health. They made their tests independently, using parts of the same specimens, with identical results.

Considerable experimental work has been done with regard to the effects of tin salts when administered to animals. Salant, Rieger and Trenthardt[2] showed that after subcutaneous injections of soluble tin salts, tin was found in the urine, feces, skin and liver. The gastro-intestinal tract was shown to be the chief organ for the elimination of tin.

Ungar and Bodlander[3] and Lehman[4] showed that repeated injections of small quantities of tin into animals, over prolonged periods, resulted in the death of the animals. The effects were manifested in the alimentary tract, the general nutrition and, above all, in the central nervous system. Paralyses of the extremities were frequently observed.

In an experiment conducted by Schryver,[5] a dog, weighing 8.5 kg., was given 20 mg. of tin subcutaneously in the course of several days, and the animal was then killed. The brain and cord of this animal weighed 65 gm. Twenty gm. were submitted to examination and contained 1.5 mg. of tin.

It is apparent from the foregoing that tin must have a rather strong affinity for nervous tissue.

I lost sight of the patient, and did not see him again until Sept. 14, 1917. He came to me complaining of the same symptoms, but in a milder form. He said that he had been under the care of Dr. Marion Whitacre, by whom he had been sent to Dr. Mithoefer who, July 12, 1917, removed his tonsils and reported both badly diseased. I saw the patient again, October 17 and November 1, and he was still complaining of the same symptoms. He was, however, attending to his business and his appetite was normal.

This patient has since passed from under my care, and the last I heard of him he was making the "rounds" from one physician to the other still complaining of his "hots and colds," although he is now able to attend to business.

The onset of the symptoms within a few weeks of the patient's starting to wear the Watt's metal plate, and the finding of the tin repeatedly in the blood, stool and urine by two chemists working independently of each other, and then the disappearance of the tin from the blood after the patient discontinued the wearing of the plate are to my mind incontrovertible evidence in support of my diagnosis. His symptoms were almost identical with those of Jolles' patient.

In view of the experiments quoted above, in which so much tin was found in the nervous system, I feel reasonably certain that this man's nervous system suffered severely, and possibly permanently, which accounts for the persistence of his symptoms.

1. Jolles: Wien. med. Presse, 1901, **42**, 496-500.
2. Salant, W.; Rieger, J. B., and Trenthardt, E. L. P.: Jour. Biol. Chem., 1913-1914, **17**, 265.
3. Ungar and Bodlander: Ztschr. f. Hyg., 1887, **11**, 241.
4. Lehman: Arch. f. Hyg., 1902, **45**, 88.
5. Schryver: Jour. Hyg., 1909, **9**, 262.

SURGICAL TREATMENT OF EPIDIDYMITIS *

RICHARD L. COOK, M.D. (WASHINGTON, D. C.)
Major, M. R. C., U. S. Army
FORT SAM HOUSTON, SAN ANTONIO, TEXAS

The question of venereal disease in the Army since the outbreak of the present war has been an all absorbing one. Special attention has been paid to cleaning up the various training centers, and this has accomplished a great deal; but we still have the acute gonorrheal infection with its complications.

In this brief paper, I am going to deal only with the acute and subacute gonorrheal epididymitis. I have had the opportunity of observing and operating on 276 patients since entering on my duties at Fort Sam Houston as chief of the genito-urinary service.

There are many advocates of the nonoperative treatment, which utilizes only palliative measures and in no way cures the condition. It is advanced that men can be returned to duty sooner; but I do not agree with this, as I have returned them to duty as soon as the stitches were removed. The average time in the hospital on account of the operation has been less than ten days. There is often some induration which remains for a longer period, but it does not incapacitate. I have had no recurrences, but have had a number of soldiers, suffering great pain, report for a second operation several weeks later, this time

* From Base Hospital No. 1, Fort Sam Houston, Texas.

on the other testicle. This goes to show that the almost immediate relief from pain following the operation makes the procedure justifiable. Not only does it relieve the pain, but also there is, as a rule, a beginning hydrocele, which is cured at the same time. There has been no proof obtainable, but the conclusion is drawn that an epididymis operated on, with evacuation of pus, which occurred in 33 per cent. of the cases is much more apt to function than one allowed to resolve partially through applications of ice and support. Those subacute cases in which operation has been performed are always indurated, and the tail of the epididymis is much enlarged. Of course, the question of preventing any loss of function in these cases is questionable, the pus is often found and the destruction is certainly diminished. The patients give a history of numerous attacks, with pain and swelling, which are relieved by palliative measures.

The breaking up of the adhesions to the parietal layer of the tunica vaginalis is most essential. This is best done with the finger and a piece of gauze. Any lymph collecting between the layers of the tunica vaginalis should be removed with gauze.

TECHNIC OF OPERATION

After the parts have been shaved, three coats of 3.5 per cent. iodin are applied, each coat being fanned dry. This is essential, as it in a measure prevents blistering. The incision, about 2 inches long, is made rather to the outer lateral aspect of the affected side and high up. I find that in this location the skin heals more rapidly. The incision should extend through the skin only, and this dissected back for a quarter of an inch to give room for the mattress sutures. The dartos, cremasteric fascia and muscle are now opened down to the parietal layer of the tunica vaginalis, and the edges are caught in clamps. With the finger, any adhesions between these layers and the tunica are broken up; then the testicle with its tunica covering is peeled out intact, care being taken to free all adhesions up to the cord structures. The cavity of the dartos is packed with gauze to control any oozing. The tunica is opened and the old bottle operation done, care being taken not to strangulate the cord structures. The globus minor is punctured in several places with a cataract knife. If pus appears, the opening is enlarged with fine pointed forceps, and a drain consisting of a piece of rubber tissue sewed to make a tube is inserted in the hole and held in place with forceps, which will aid in replacing the testicle, the forceps to be removed after closure of the dartos. The gauze is removed from the cavity of the dartos and the testicle is replaced, the drain coming out at the upper end of the wound. The dartos and the cremasteric structures are closed with continuous plain catgut. The closure of the skin I consider quite important. This is done by mattress sutures of silkworm-gut about one-quarter inch from the margin of the wound and pulled up tight. Two sutures are usually sufficient. The drain is removed in from forty-eight to seventy-two hours, and the stitches are taken out in six or seven days. In dressing, one should not attempt to irrigate through the drain. Gentle pressure from below will get rid of any accumulation. A suspensory bandage is worn for several weeks.

RESULTS

The results have been so uniformly good and the recoveries so rapid that I believe the operation should be done in all cases, and I suggest the following of the technic as given.

I have had only one case of epididymitis referred to me since being here that could not be traced to gonorrheal origin. The pus at operation, and subsequently, showed by culture *Staphylococcus aureus* infection, the source of which could not be determined.

TUBERCULIN AS A DIAGNOSTIC TEST OF TUBERCULOSIS IN MAN

L. M. RYAN, B.S., M.D.
BANNING, CALIF.

When one delves into the vast amount of bewildering literature that represents the present day knowledge of tuberculins, one is apt to emerge with a chaotic idea, if any at all, of the entire matter. From this literature I have made selections, and have arranged the matter in the way in which it makes the subject clearest to me. I present it here as it applies to diagnostic tests.

Before taking up the subject matter I will give some definitions of terms used, in accordance with my plan:

Antituberculin.—A substance found in the blood and tissues (Ludke, 1907) of a tuberculous person after being treated with tuberculin. In this connection this would also be called *substance sensabilitrice,* antibody or amboceptor.

Antigen.—The exciting agent — in this case, the injected or applied tuberculin.

Complement.—A protective substance found in normal blood serum. Its union with the foregoing factors has been found to be necessary to produce the bacteriolysis, a step, a factor, perhaps the essential factor to the production of immunity.

Tuberculin.—A substance consisting of the culture fluid in which tubercle bacilli have grown, of ground up tubercle bacilli or of extracts of their bodies, and of both combined.

The tubercle bacillus, as other bacteria, claims two different poisonous substances: (1) exotoxins, or poisons secreted by the organisms into the culture medium, and (2) endotoxins, or poisons contained in the living protoplasm of the organism, and liberated only by their disintegration. Tuberculins, whether from the filtrate or the bacillary body, always produce essentially the same effects, there being differences in the degree, but never in the character of the reactions. They act as the living tubercle bacilli minus the power of growth and reproduction. The tuberculins from human and bovine bacilli are practically the same in their action on infected animals (Weber and Dieterlen).

THE TUBERCULIN REACTION

This is manifested in three ways: local, at point of injection; focal, at location of diseased area, and constitutional, or general body phenomena.

The tuberculin test, in the absence of complete evidence, probably owes its activity to the presence of a specific protein of the tubercle bacillus, either in solution, as bacillary bodies, or as particles of such. In the broad sense, then, tuberculin hypersensitiveness is undoubtedly closely related to the phenomenon of protein hypersensitiveness or anaphylaxis.

Wassermann and Bruck, modifying a theory of Ehrlich's on the modus operandi of the tuberculin reaction, have advanced the following view:

They look on the reaction as depending on a union in the lesion of the injected tuberculin with a substance they call antituberculin. The combination anchors a large amount of complement, which acts as a ferment on the surrounding tissue, causing the inflammatory changes characteristic of the focal reaction, these in turn determining the fever and other constitutional symptoms.

The failure of a tuberculous person to react after receiving a large dose of tuberculin may, therefore, be explained in one of two ways, dependent in part on the stage and character of the disease: (1) In mild cases it is presumed that sufficient antituberculin is present in the serum to unite immediately with the tuberculin injected, the speedy combination preventing the local disturbance and keeping the tuberculin from reaching the tuberculous focus. (2) In advanced or severe cases, it is assumed that, owing to the exhaustion following on long stimulation, the cells can no longer furnish the antibodies.

In the same manner, in a latent case there may be a better reaction to a second test than to the first one,[1] and, on the other hand, in a severe case a better reaction to the first one. The following formulas illustrate the working of the theory:

1. Reaction = tuberculin plus antituberculin at focus.
2. No reaction (severe cases) = tuberculin plus no antituberculin at focus.
3. Reaction at first test and better reaction at second = Tuberculin plus plenty of antituberculin at focus; more antituberculin formed as a result of the first dose.
4. Reaction at first test and none at second = tuberculin plus no antituberculin at focus.
5. Tuberculin tolerance (no reaction) = speedy uniting of tuberculin and antituberculin before reaching focus.

The Wolff-Eisner theory explaining the tuberculin reaction is also very ingenious. According to this view, abundant specific lysins are elaborated in a stimulated tuberculous individual. These lysins disintegrate any tubercle bacillus protein later introduced into the individual. In the disintegration process he holds that endotoxins are set free which act as poisons on the tissue cells exposed.

Working with this theory, one would account for the local disturbance or reaction as similar to that occurring in the focus. Hamman and Wolman believe that profound changes exist in all cells of the body of a tuberculous individual. The only remaining factors, then, in the production of the local reaction would be the traumatism to the body cells at the point of application of the tuberculin, and the fact that the tuberculin is concentrated on the same cells. This view is supported by the fact that at the site of the local reaction the tissues show the histologic picture of a tubercle.

COMPARATIVE DIAGNOSTIC TESTS IN MAN

In order of efficiency, these are generally accepted as follows:

1. Intracutaneous: 0.05 c.c. of old tuberculin in a dilution of from 1:1,000,000 to 1:100, if necessary.
2. Subcutaneous: local (old tuberculin).
3. Cutaneous (von Pirquet): 90 per cent. efficiency.
4. Subcutaneous.
5. Percutaneous: old tuberculin and lanolin (Moro test); 83 per cent. efficiency.
6. Conjunctival: 1 per cent. old tuberculin; less efficient than the Moro test.

If we realize that the intracutaneous and subcutaneous tests require absolutely perfect technic and are rather harder to perform and take more time, it would leave by elimination Test 3, the cutaneous, as being the most practical. If, again, we may do anything to make the cutaneous test still more efficient, it will certainly be the most practical.

Detre, in 1908, described his modification of the von Pirquet test, and it is with this that I wish to deal. The tuberculins that he employed were (1) human old tuberculin (H. O. T); (2) human bouillon filtrate (H. B. F.), and (3) bovine bouillon filtrate (B. B. F.).

He employed a small, dull instrument like a jeweler's screw driver, rotated it, made four abrasions on the inner side of the upper arm, and inoculated the three solutions into three of the abrasions, leaving the fourth sterile for control. His idea was that, performed as outlined, it would be a differential diagnostic test, and as such it is known and marketed here and abroad.

This test is supposed to show seven important things in addition to the von Pirquet test: whether the lesion is acute or chronic, active or latent, and whether the infection is of the human or bovine type, or both mixed. By measuring the resultant papules in both diameters in millimeters, he asserts that he is able to judge accurately the process to be determined. His theory is that a person infected with the bovine infection will react more strongly to the bovine filtrates than to the human, and vice versa. Also, a person with the active form of the disease will yield to the filtrate a papule as large as or larger than it will to the old tuberculin, and vice versa with the latent cases.

That the human type may give a predominant reaction, and the bovine some reaction, he attributes to certain of the similar characters of both bacilli, as I have mentioned before. He believes that the predominance of the reaction to the filtrate in active cases is due to the presence in the filtrate of a thermolabile substance that is destroyed in the reduction by heat in the manufacturing of old tuberculin. The body is quickly sensitized to this substance, which is a toxin during the progress of a lesion, and with its arrest auto-immunization to this toxin occurs. He considers auto-immunization to the protein bodies of the old tuberculin a rarer and more difficult occurrence. Many competent observers have tried out his method, and their results are not in harmony. The majority of those who employ or try out this method make a still further modification of Detre's original method. They add the bovine old tuberculin, which, with the control, makes a five abrasion test. They place all cases in eight groups as follows:

Group 1. Human old tuberculin papule positive; others slight or negative (old human lesion).

Group 2. Human old tuberculin papule more marked than human bouillon filtrate papule (old human lesion).

Group 3. Human bouillon filtrate papule more marked than human tuberculin papule (active human lesion).

Group 4. Bovine old tuberculin and bovine bouillon filtrate papules positive, bovine old tuberculin papule more so; others slight or negative (old bovine lesion).

Group 5. Same as Group 4, but bovine bouillon filtrate papule more marked than bovine old tuberculin papule (active bone lesion).

Group 6. Human old tuberculin and bovine old tuberculin papules equal and more marked than human bouillon and bovine bouillon filtrate papules (old mixed lesion).

Group 7. Human bouillon filtrate and bovine bouillon filtrate papules equal but more intense than human old tuberculin and bovine old tuberculin papules (active mixed lesion).

Group 8. All papules approximately alike.

Hamman and Wolman[2] and others have not been able to substantiate this finely drawn classification.

1. In a series of 129 children, Lindenberg recently found that 33 per cent. reacted better to the second test than to the first one. This majority consisted mostly of latent cases.

2. Hamman, Louis, and Wolman, Samuel: Tuberculin in Diagnosis and Treatment, New York, D. Appleton & Co., 1912.

I myself do not believe that Detre's grouping, even with the modification by addition of the bovine old tuberculin, can be substantiated. Also, I am in some doubt as to whether a patient reacting only to the bovine tuberculins necessarily has a bovine infection. However, the test is generally acknowledged to be fairly accurate in determining whether or not a tuberculous infection, which may be only a trace, is present (accuracy above 90 per cent.); furthermore, if the inoculations are made with the four tuberculins mentioned below, I believe the test can be shown to have much value from a practical standpoint, (1) in detecting the presence of active or clinical tuberculosis; (2) in determining the amount of resistance of the patient, and (3) in offering aid in the treatment.

METHOD OF APPLICATION

The arm, preferably the external surface of the upper arm, is cleansed with ethyl alcohol. Through the superficial part of the skin, five abrasions are made, deep enough to remove the skin, but not to draw blood. These abrasions are made with a small instrument similar to a jeweler's screw driver, by lightly boring with it into the skin. The abrasions should be about three-fourths inch apart and range in a longitudinal straight line parallel with the long axis of the humerus.

After the alcohol is thoroughly dried on the arm, the points are treated from above downward in the following or any similar order one may wish to devise to use as a systematic method:

1. Human old tuberculin.
2. Human bouillon filtrate.
3. Bovine old tuberculin.
4. Bovine bouillon filtrate.
5. Not inoculated; kept as control.

After two or three minutes the excess tuberculin is blotted off with a piece of sterile gauze and the sleeve pulled down without the application of any dressing.

The various tuberculins enumerated may be best purchased in 1 c.c. vials from some standard maker of biologic products. For ease of application, a small glass rod may be shoved through each cork. In the process of inoculation, the abrasions are merely touched, each with the individual tuberculin, enough being placed on to cover, but not to run and contaminate the tests. To avoid contamination of the solutions, the glass rod should be sterilized in a flame after each inoculation.

AFTER-APPEARANCE OF TEST POINTS

Soon after the boring, a small mechanical wheal forms. Within from four to twenty-four hours in most cases after inoculation, a small red papule forms at the various areas in which the reaction will take place. These, in the more severe reactions, advance to the vesicular stage.

In some cases the point of reaction does not reach its greatest size for forty-eight hours or more. From then on there is a gradual diminution of size and fading of color of the papule, until at the end of approximately a week a small bluish mark is all that remains.

Constitutional symptoms are rare.

Of course, in the use of this test, as in others, nearly all persons will react after thirty-six hours (the so-called latent cases of tuberculosis). It would seem, therefore, that the importance of this test depends on the amount of reaction within the first thirty-six hours. One soon becomes accustomed to various sized papules as depending on the amount of reaction and the supposed amount of activity of the disease that causes them.

AMOUNT OF REACTION

Detre used a measurement of 5 mm. in each diameter or over in the size of the papule as meaning a positive reaction. It would seem that the size and field of the scarifier would enter into this so largely that such a classification could not be accurate. The following classification seems more practical:

Any redness more than control, +.
More redness with some infiltration, ++.
More redness yet and a wide area of infiltration, cases that go on to vesiculation, +++.

The tuberculin test is specific. Persons who do not have tuberculosis will not react to tuberculin. This has been proved finally after many investigators were ready to discard the test as an inaccurate procedure, undoubtedly because of their contrariness of technic and interpretation of experiments.

There are conditions of tuberculin insensitiveness in which tuberculosis is present and the test shows negative:

1. In conditions in which there is great toxemia and consequently no antibodies, the test will show as a negative. This condition is perhaps the one encountered most often giving a negative, yet this happens rarely, considering the number of cases in which there is a reaction. It will depend a great deal on the source of the cases. In some county and state institutions, it may be as high as 10 per cent. or more; but as a rule 2 per cent. will cover it.

2. Completely healed lesions will not react.

3. Often pneumonia, diphtheria, scarlet fever, or cerebrospinal meningitis may mask a tuberculous condition that may also be present.

4. In very acute tuberculous infections, as acute miliary tuberculosis, tuberculous meningitis, or very rapidly progressing pulmonary tuberculosis, the test may be negative.

5. Errors in technic should be very rare with the modified Detre test.

6. Tuberculin treatment produces, if successful, a condition of antianaphylaxis.

ADVANTAGES

This test, which is largely in use in this section of the country, should be used in every examination made to discover the presence of active tuberculosis.

1. It is easy in application.

2. It is of some value in prognosis. Its absence in a case of known tuberculosis would indicate considerable doubt as to the recovery of the patient. Of course, this does not mean that every patient who reacts will recover. In a very latent case there is only a slight reaction. A case with a marked reaction would tend to show, taken with other signs and symptoms, a marked resistance, although also showing marked activity. These points in prognosis I merely mention as examples, and in this paper I cannot elaborate them.

3. Constitutional disturbances accompanying the test are very rare.

4. Its efficiency might be thus elaborated: Many observers say that an exclusively bovine reaction means a bovine infection. They bring in findings of this in from 0.6 to 25 per cent. of their cases, depending greatly on the localities. We could safely substantiate 4 per cent. in our large cities of the Southwestern States.

A certain percentage also show filtrates positive when the old tuberculins are negative.

In Dr. Browning's series at the Los Angeles County Hospital, in 1,482 cases up to the spring of 1917, there were 781 positive reactions to human old tuberculin; 725 to human bouillon filtrate; 722 to bovine old tuberculin, and 691 to bovine bouillon filtrate. Less than 200 did not react. This quantity is easily explained by the class of cases as a rule in such institutions. As Dr. Browning says:

> Unless all are used [meaning modified Detre] certain cases will be met with in which the desired information would not be obtained, as evidenced by the difference between the 781 H. O. T., which is the von Pirquet test, and the 1,482 less the number which was 200 or less, which did not react to either.

If the various statistics will give the von Pirquet or our No. 1 of this modified Detre 90 per cent. efficiency, and to this we add the cases responding only to the bovine tuberculins and filtrates, it would seem that

Appearance of arm with test applied; strongest reaction at third scarification, the predominant reaction in this type of case to bovine old tuberculin.

this test would be just about as efficient as the subcutaneous local or the intracutaneous test; and when we consider the ease of application with the much lessened chance of technical errors, I believe that this is our best tuberculin test that has been worked out to date.[3]

3. In addition to the references already given, the following will be found of interest:
Pottenger, F. M.: Clinical Tuberculosis, St. Louis, C. V. Mosby Company, 1917.
Bonney, S. G.: Pulmonary Tuberculosis and Its Complications, Philadelphia, W. B. Saunders Company, 1910.
Bandalier and Roepke: Clinical System of Tuberculosis (all forms), New York, William Wood & Co., 1913.

Trap Shooting as a Recreation for Physicians.—Dr. Leroy A. Newton recommends trapshooting as a recreation for physicians—perhaps as a substitute for golf. Among the unassailable reasons why this form of outdoor sport is peculiarly adapted to physicians he enumerates the following: Trapshooting and sociability are inseparable, and the one great thing that elevates man above the other animals is sociability; it takes the physician away from all business and affords complete relaxation from professional cares; it is an outdoor game with a goodly amount of exercise connected with it; it will make a man cut out bad habits, as trapshooting and bad habits cannot go together; many men train for a tournament as carefully as does the prizefighter, leaving off tea and coffee, alcohol and tobacco, eating plain food and paying attention to proper elimination. Age is no bar. It will keep the devotee physically fit, Newton says, and make a better man of him in every respect.

OBSTRUCTIVE DYSMENORRHEA AND STERILITY

A NEW OPERATION

JACOB FRANK, M.D.
CHICAGO

Obstructive dysmenorrhea and sterility most commonly depend on a pathologic anteflexion of the

Fig. 1.—Uterus brought forward and upward; posterior incision begun.

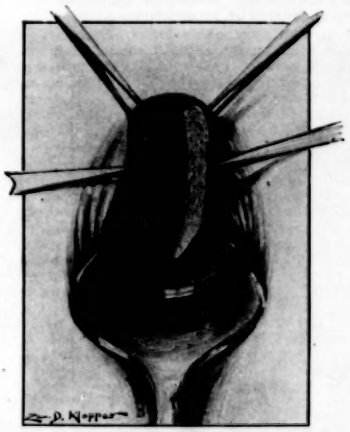


Fig. 2.—Incision completed, showing two lateral raw surfaces.

uterus. One must lay emphasis on and distinguish such an anteflexion, as opposed to the physiologic anteflexion of the normal uterus, if one is to get successful results from any corrective measures that may be instituted. With the distinction between the physiologic and pathologic anteflexions clearly in mind, I wish to present an operation for the correction of the

latter, an operation that has successfully corrected the dysmenorrhea in all properly selected cases. It has frequently ended a long period of sterility, and the resulting pregnancy has been terminated in two cases by comparatively easy labors, the maternal passages (particularly the effacement of the cervical canal and the dilatation of the os) acting like those of a multipara.

It was long ago determined that mere dilatation of the cervix was ephemeral in its effects. To this procedure was soon added the bilateral section of Sims. But this was discarded as being insufficient, in the first place, the resulting scar increasing the stenosed condition for which the operation was performed, and dangerous, in the second place, for often the exposed raw surfaces acted as an atrium of infection with subsequent lymphangitis involving the pelvic cellular tissues and frequently the tubes. And thus again, one of the objects of the operation, the correction of the sterility, was defeated.

In 1910, Pozzi presented his operation for dysmenorrhea and sterility before the American Gynecological Society. This attempts to correct the so-called "pinhole os," in which there is a slight dilatation of the cervical canal, with accumulation of secretion in the canal, as a result of the external cervical stenosis.

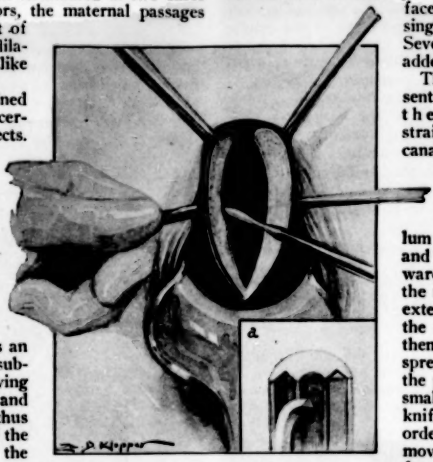


Fig. 3.—Removal of the wedge-shaped tissue; *a*, wedge when removed, leaving trough-shaped cavity.

Dudley, as long ago as 1891, published a description of his "plastic operation designed to straighten the anteflexed uterus." This consisted of the posterior cervical incision, originally introduced by Sims, plus the removal of small wedges of the whole cervical thickness from both sides in such a manner as to bring the external os directly backward when the cut surface is folded on itself by a single silkworm-gut suture. Several interrupted sutures are added for safety.

The operation I wish to present recognizes the value of the posterior incision in straightening out the cervical canal and so correcting the stenosis at the internal os. The cervix is grasped at the uterovaginal junction with small uterine tenaculum forceps, one on each side, and pulled outward and upward. An incision is made in the middle of the posterior lip extending well up to and past the flexion. The tenacula are then removed and used to spread apart the two halves of the posterior lip. With a very small-bladed, spear-shaped knife, made on the Catlin order, wedges of tissue are removed from the two raw surfaces of the posterior lip, leaving a trough. Just enough tissue is removed to allow easy and exact approximation of the entire cervical and vaginal surfaces. The first suture is commenced at the angle of the posterior incision and extreme care taken to approximate accurately the internal cervical and the vaginal mucosa at this point. This is important, to avoid healing by granulation and so secondary contraction. Twenty or forty day No. 1 chromic gut is used in a continuous or interrupted suture.

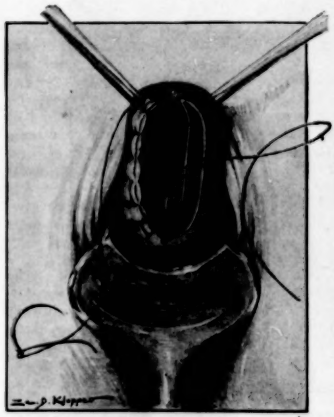


Fig. 4.—Suture commencing at the most dependent part of incision, approximating the uterine and vaginal mucosa.

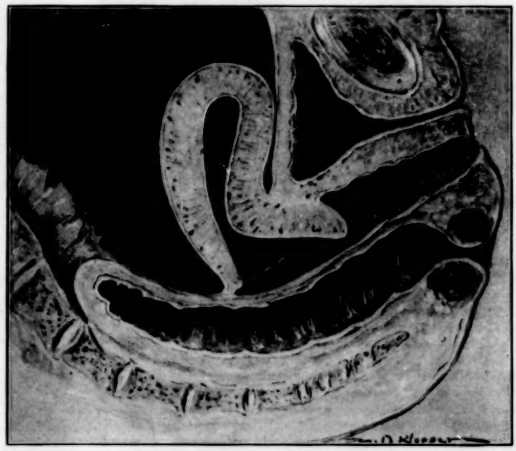


Fig. 5.—Lateral section, showing the straightened uterine canal.

The original Pozzi operation is ideal in cases of true "pin-hole os," that is, for obstruction at the external os. But in many cases the dysmenorrhea and sterility result from angulation of the uterocervical canal at or near the internal os. And my experience leads me to believe that angulation never takes place above the internal os. This angulation is completely done away with by the operation described, by eliminating entirely the canal below the angulation, as the posterior incision extends up to and beyond this point.

I would not hesitate to apply the principle of this operation for retroflexion of the uterus producing symptoms, should the proper case present itself.

25 East Washington Street.

ELEPHANTIASIS

REPORT OF A CASE

REINHARD E. WOBUS, M.D.
AND
E. L. OPIE, M.D.
Professor of Pathology, Washington University Medical School
ST. LOUIS

Cases of elephantiasis are sufficiently rare in this climate to warrant the reporting of all observed cases. It is for this reason that we submit the following case report:

REPORT OF CASE

History.—Miss C., aged 40, a domestic, born in southern Germany, her name indicating French descent, had come to this country in early childhood and had lived in St. Louis without intermission since. She had the usual diseases of childhood, but otherwise had enjoyed good health.

At an early age, her mother experienced increasing difficulty in fitting her right shoe, the right foot being apparently somewhat swollen. Since then the right foot had progressively enlarged, the swelling gradually affecting the leg. She was placed under the care of Dr. H. H. Summa, who had since had her under observation. He made the diagnosis of elephantiasis of unknown origin, and tried various methods of combating it, among them bandaging with elastic bandages and potassium iodid. The condition became gradually worse, it became increasingly difficult to have proper footwear fitted, the muscles became progressively weaker and, with the increasing weight of the tumor, locomotion became difficult. Therefore, physician and patient agreed on amputation.

Fig. 1.—Elephantiasis.

Operation and Result.—While various operations for resection of the diseased tissue (decortication) with plastic reconstruction of the soft parts have been proposed, with apparently fair success, the extent of the trouble and the involvement of the musculature seemed to rule out this mode of procedure. Ligature of the femoral artery did not seem to promise any great relief. Hence we did an amputation high enough to get into healthy tissue. Five years have now elapsed, and there has been no extension of the process. The patient walks around well on her artificial leg, and is happy to have been relieved of her tumor mass.

EXAMINATION OF SPECIMEN, BY DR. OPIE

Gross.—The specimen consisted of the lower leg amputated just below the tubercle of the tibia. The leg was deformed by a pendulous mass occupying the entire calf, heel and sole of the foot to within 10 cm. of the toes. The lower part of the leg and the foot, except the toes, were obscured by a mass which, over the lower third of the leg, completely surrounded the bones. The tissue was nodular and soft, and the dependent part appeared to be edematous. The skin was soft and freely movable over the underlying constrictions. On section through the calf, extended into the pendulous tissue about the heel, it was found that the enlargement was due to the presence of a mass of white tissue which was tough and fibrous. Ill defined nodules were visible and palpable within it. The gastrocnemius muscle was pale and marked with opaque striations. The mass over the heel was of the same structure. The white fibrous tissue invaded the fat over the heel and the sole of the foot. It was intimately bound to the periosteum of the os calcis. The tumor seemed almost completely to have replaced the gastrocnemius. Red muscle of fairly normal appearance was reached only when the section had penetrated through the calf to the bones. In places, what appeared to be blood vessels were surrounded by an unusually firm layer of fibrous tissue.

Fig. 2.—Elephantiasis.

Microscopic.—On section through the skin the corium was occupied by a dense, fibrous, scarlike tissue, continuous with the underlying subcutaneous tissue, which had in many places been converted into dense fibrous tissue poor in cells; but immediately above the blood vessels, it contained numerous cells of the connective tissue type. Mononuclear eosinophil cells were fairly numerous. The tissue underlying the skin for a distance of more than 2 cm. consisted of islands of fat surrounded by dense fibrous tissue. Around the blood vessels, new formed tissue was often especially dense. The intima was greatly thickened, and the media was traversed by fibrous tissue.

Sections from many parts of the leg were examined. They consisted of dense fibrous tissue, in a few places containing cells in abundance. A section from the voluntary muscle showed that it was being replaced by a new formed fibrous tissue. In some places, muscle cells were replaced by fat; in others, by masses of fibrous tissue.

The diagnosis was elephantiasis.

Comment.—The section offered no explanation of the cause of the condition. The lymphatic vessels showed no dilatation, and were inconspicuous in the section. The lesion may be classed as elephantiasis dura.

Apparatus for Artificial Respiration.—A. L. da Cunha gives an illustrated description in the *Revista Medico-Cirurgica do Brasil*, 1917, **25**, 276, of an electric device for artificial respiration. It combines rhythmical traction of the tongue with intratracheal insufflation of oxygen.

THE USE OF CELLULOID IN THE CORRECTION OF NASAL DEFORMITIES *

G. B. NEW, M.D.
ROCHESTER, MINN.

For many years it has been the general practice to use a piece of bone from the tibia, rib or scapula, or a piece of cartilage from a rib, for an autogenous transplant in the correction of deformities of the nose resulting from trauma or syphilis. In carrying out this method the wound necessarily made where the transplant is taken causes more inconvenience to the patient than does the nasal wound.

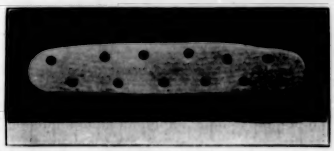


Fig. 1 (Dog B 684).—Piece of celluloid unaltered after being in tissue over dog's nose for one year.

During the past year I have used celluloid as an implant into the tissue over the nose in a series of dogs, and in five cases in man. The results have been so satisfactory that the use of celluloid seems preferable to that of cartilage or bone. The necessity of taking a transplant is thereby eliminated and the operation simplified.

In 1908, Koschier[1] reported two cases of nasal deformity in which he used thin celluloid plates, and he believes that this is the best heteroplastic material for the purpose. Koschier followed the method suggested by Föderl,[2] who reported two cases in 1903 in which this material had been used. In 1916, Higgins[3] recommended the use of celluloid in plastic surgery of the face. He has built up three noses with good results, and believes celluloid ideal material in such cases. He has used a fluid preparation of celluloid in elevating deep scars. Thompson,[4] also in 1916, in an article on the use of celluloid in surgery, mentions the fact that it is of great value in cosmetic surgery of the nose.

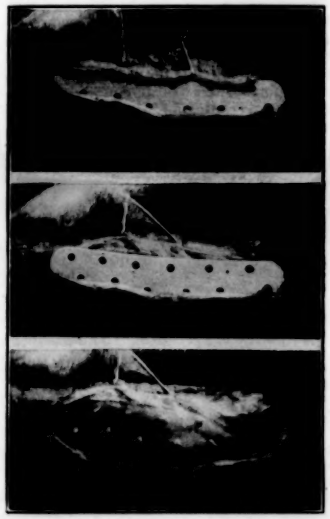


Fig. 3 (Dog B 684).—*A*, tissue covering celluloid incised and retracted with sutures; note tissue extending down into perforations in the celluloid. *B*, margin of implant exposed by cutting tissue extending into perforations; note clean-cut margin of celluloid and tissue in perforations. *C*, surface left after removal of celluloid; note impression in bone at upper extremity where celluloid rested, and stumps of tissue which were in perforations.

Fig. 2 (Dog B 684).—Celluloid in situ over dog's nose covered by subcutaneous tissue. Small area of celluloid exposed.

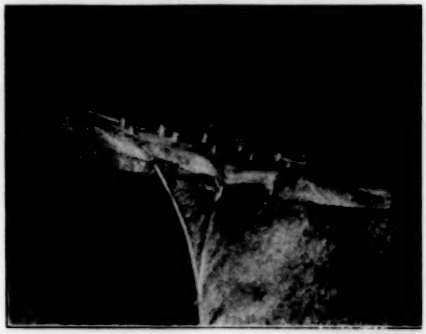


Fig. 4 (Dog B 684).—Note stumps of tissue which had extended completely through perforations in implant.

I have not been able, however, to find any reference to the use of celluloid in plastic surgery of the nose, in this country, during the last ten years. In order to determine the advisability of its use in the correction of deformities of the nose, I inserted pieces of cellu-

* From the Mayo Clinic.

1. Koschier, H.: Ueber Nasen plastiken, Wien. klin Wchnschr., 1908, **21**, 1734-1736.
2. Föderl, O.: Ueber Knochen- und Knorpelersatz, Wien. klin. Wchnschr., 1903, **16**, 1424-1429.
3. Higgins, C.: A Note on the Use of Celluloid in Plastic Surgery, Lancet, London, 1916, **2**, 643-644.
4. Thompson, G. S.: Some of the Surgical Uses of Celluloid, Together with Remarks on the Technique of Fracture Operations, Brit. Jour. Surg., 1915-1916, **3**, 696-707.

loid into the tissue over the nose in six dogs. The celluloid was obtained from a celluloid soap dish, and the pieces measured 6.3 by 1.2 cm., and varied in thickness from 2 to 2.5 mm. Several holes measuring 1.5 mm. in diameter were made in each piece. The celluloid was boiled for ten minutes for sterilization. Under ether anesthesia an incision was made down to the bone across the bridge of the dog's nose. With blunt dissecting scissors the tissues were elevated to make a pocket for the insertion of the piece of celluloid, which was placed in the pocket and the wound closed with silk sutures. In two of the six dogs the wounds became infected, and in the other four they healed nicely with practically no reaction, the celluloid acting as an ideal implant.

In the five cases in man the celluloid was obtained in a block about a foot square and three-eighths inch

Fig. 5 (185775).—Before insertion of celluloid into tissue over the nose.

Fig. 6 (185775).—After insertion of celluloid into tissue over the nose.

thick and sawed into pieces as needed by means of a "fret" saw. Several pieces, approximately what would be required, were shaped with a file before each operation, and then perforated with small holes about 1.5 mm. in diameter by means of a drill. Pieces varying from 2 to 4 mm. in thickness have been used; they also are boiled ten minutes for sterilization.

The technic of inserting the implant is that in general use by men doing this work. It was recently described by the late Dr. E. H. Beckman[5] for the use of cartilage from a rib. A curved incision extending down to the bone is made across the nose between the eyes where the bridge of a pair of glasses would rest. With small, blunt, curved eye scissors a pocket is made in the midline of the nose down to the tip. Care must be taken to keep the pocket in the midline and not to enter the nasal cavity. The piece of celluloid which will best correct the deformity is selected from those previously prepared, and if any trimming is needed, it is placed in hot water, when it may be cut with a knife as readily as cartilage; on cooling it becomes hard again. If it is necessary to curve the implant, placing it in hot water makes this possible, and it should be held in the required position until it is cooled.

After the celluloid has been shaped, it is inserted down to the tip of the nose; the wound is closed with horsehair and sealed with tincture of benzoin compound. A thin copper splint is applied externally and held in place by adhesive plaster. In all the five cases the wounds healed primarily with practically no reaction. The implants have remained in position and have given no trouble; some of them have been in place for more than a year. I have not had an opportunity to use celluloid in a flap operation, but see no reason why it could not be thus used.

5. Beckman, E. H.: Correction of Depressed Fractures of the Nose by Transplant of Cartilage, Surg., Gynec. and Obst., 1915, **21**, 694-696.

CONCLUSIONS

It would seem from my experience with these cases that celluloid has several advantages as an implant in the correction of nasal deformities.

RESULTS OF EXPERIMENTS

Experiment	Dog	Series No.	Time After Operation	Results
75-17	B-512	1	138 days	On palpation the celluloid could be felt in position and could not be displaced; when the celluloid was exposed it was found to occupy a definite pocket, but organization had not completely taken place through the perforations; the celluloid was easily removed; the tissue about the celluloid showed no inflammatory reaction; the implant was not altered in any way
76-17	B-530	2	168 day	The celluloid was still in position, but was surrounded with pus; the material itself appeared to be the same as when embedded
77-17	B-684	3	365 days	On palpation the celluloid could be felt in position, but could not be displaced; when the celluloid was exposed it was found to occupy a definite pocket, and its upper end was embedded in bone; the tissue over the celluloid was incised, and definite finger-like processes of tissue were found to extend through each perforation; the implant could not be removed until these were cut; the tissue about the celluloid showed no inflammatory reaction, and the implant was not altered in any way
392-17	B-980	4	Unknown, at least 120 days	The site of the implant became infected, and the celluloid came out
393-17	B-981	5	211 days	On palpation, the celluloid could be felt in position and could not be displaced; when the celluloid was exposed, it was found to occupy a definite pocket, but organization had not completely taken place through the perforations; the celluloid was easily removed; the tissue about the celluloid showed no inflammatory reaction; the implant was not altered in any way
394-17	B-982	6	219 days	On palpation, the celluloid could be felt in position and could not be displaced; when the celluloid was exposed, it was found to occupy a definite pocket, but organization had not completely taken place through the perforations; the celluloid was easily removed; the tissue about the celluloid showed no inflammatory reaction; the implant was not altered in any way

1. It eliminates the necessity of taking an autogenous transplant.
2. It causes practically no reaction when inserted in the tissues, and apparently is not affected by them.
3. It may be readily trimmed or curved when placed in hot water.
4. It remains stiff even when trimmed quite thin.

Military Medicine and Surgery

A SIMPLE FACE MASK FOR USE BY CONTAGIOUS DISEASE ATTENDANTS

ARTHUR M. DANNENBERG, M.D.
First Lieutenant M. R. C., U. S. Army
CAMP JACKSON, COLUMBIA, S. C.

Modern scientific investigation has definitely established that the most frequent mode of transmission of infectious diseases is through droplet infection from the oral and nasal passages of the infected persons or unrecognized carriers of the infectious organisms. A recognition of this fact has caused the adoption at the base hospital, Camp Jackson, S. C., particularly by the physicians and other attendants of the cerebrospinal meningitis patients, of various forms of protective face masks. The one most commonly used is a gauze strip, made either of several layers of gauze bandage or more frequently of a gauze dressing roll, which covers the nose and mouth and is held in place at the occiput by a pin or a knot.

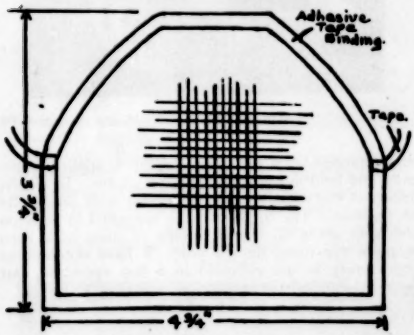


Fig. 1.—Diagram for construction of face mask.

This method entails the use of large quantities of gauze, and has proved generally unsatisfactory since it is uncomfortable, rarely remains in position, and causes fogginess of the eyeglasses.

In recognition of the limitations of the gauze strip, a simple mask meeting every requirement of protection and comfort was designed.

It is made as follows:

A piece of galvanized wire mesh, generally used for screening purposes, is cut as in Figure 1. The size varies with the requirements of the individual physiognomy. The measurements indicated in Figure 1 are for the average male face. The edge of the mask is bound by adhesive plaster to protect the face from the wire points that are present. A piece of tape is then sewed in the center of both sides directly through the wire and adhesive binding.

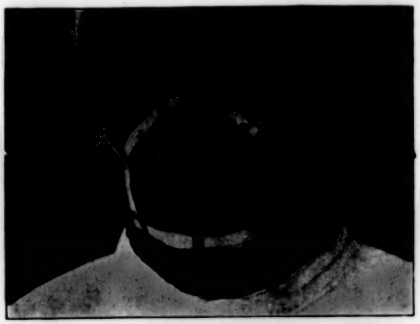


Fig. 2.—Front view of face mask.

Gauze, usually of double thickness, is cut one-quarter inch larger than the mask and placed on the latter with its edges turned under to prevent fraying. The gauze is then sewed either directly to the mask, or fastened by means of brass paper clips. The clips permit rapid replacement of the gauze when necessary. The mask is then molded to fit comfortably over the nose and mouth, and is held in position by the pieces of tape, which are brought over the ears and tied under the occiput.

To facilitate the putting on of the mask, its quick removal, or its better adjustment on the face, an elastic tape may be used in lieu of the nonelastic one.

Fig. 3.—Side view of face mask.

The advantages of this mask are: (1) complete protection; (2) simplicity; (3) ease of manufacture; (4) economy in the use of gauze; (5) ability to wear it without the eyeglasses becoming foggy, and (6) permanence of position on the face.

VISUAL FACTORS IN EQUILIBRATION, ESPECIALLY AVIATION

PERCY FRIDENBERG, M.D.
Attending Ophthalmic Surgeon, Lebanon Hospital; Junior Surgeon, New York Eye and Ear Infirmary
NEW YORK

The great importance of aerial flight in modern warfare, and the need of full information as to the functional integrity of aviators, has shown how a practical demand in medical science can almost immediately produce a supply in the standardization and application of labyrinthine tests which until comparatively recently were, if not quite theoretical, at least not applied so uniformly, generally and accurately as to become a routine measure of value. At present, the rotational tests can be carried out in less than a half hour, and the vertigo, past pointing and falling, in fact, the entire labyrinthine reaction, determined and recorded. This is due largely to the use of a standard chair that can be stopped on the second and rotated evenly at a given speed, and to the control of all tests with the stop watch. It has generally been assumed that a normal labyrinth is the sine qua non and the only essential for equilibration. It seems to me that this is a one sided point of view, that there are other important factors of equilibrium, and that visual factors, particularly, have been overlooked and merit attention in the determination of physical fitness of applicants for positions in the flying corps.

Without any intention of denying the importance of labyrinthine integrity or of belittling the practical tests of function by rotation, I believe it is timely to sound a note of warning against the neglect of other factors in balance and vertigo, and to call attention to the practical significance of clear vision and normal ocular muscle balance in aviators and military recruits. The labyrinthine tests refer, naturally, to rotational vertigo alone, and the fallacy to which I wish to call attention is the view that all vertigo is rotational and, so, labyrinthine. As a matter of fact, we must recognize, as did Nagel years ago, that there is a continuous series of vertigo forms ranging from the purely labyrinthine, due to rotation, to the purely visual without any motion or rotation component whatsoever, and that all of these forms are of practical importance as they equally interfere with balance and direction control and with full and undisturbed consciousness. Forms of dizziness that may make one faint or unable to control an aeroplane are commonly found in neurasthenia, anemia, chronic alcoholism, malaria, chronic nicotin poisoning, and many other toxic states, as well as in chronic intestinal indigestion, lead intoxication, and in convalescence from various diseases. Aside from these illnesses, apparently healthy subjects complain of dizziness due to various ocular anomalies, among which I may cite mixed astigmatism, accommodation spasm and paresis, ocular motor imbalance, retinal hyperesthesia, and asthenopic strain from whatever cause, functional, organic or, finally, exterior, as defective or improper illumination, position or work. Faulty or ill fitting glasses, especially prisms or cylinders, are quite sufficient to cause dizziness of incapacitating degree.

Labyrinthine disease is not common, even in hospitals devoted to the ear. Probably only a very small percentage of all mastoid operations involves the inner ear. The patients with labyrinthine involvement are generally critically ill. At least we may be safe in saying that they are not going about in search of positions in the flying corps. The same may be said of dead labyrinths. Their unfortunate possessors are not apt to try lofty flights, ideal or actual; and nowadays that the mastoid operation is performed early and often, the dead labyrinth, generally a result and residuum of neglected chronic labyrinthitis, is becoming progressively rarer. Reference has been made to unexplained falls from flying machines, and it is taken for granted that these accidents have happened to aviators with defective labyrinths, and that they might have been avoided by previous rotational tests.

I think these assumptions quite gratuitous. In the first place, such defective labyrinths would have been detected in the course of instruction over the aviation field, or, at least, during the first trial flights. Again, the assumption ignores the possible effects of altitude and temperature on normal but susceptible organisms — not alone the labyrinth — and the natural possibility, amounting to a great probability, that any one of a dozen factors, such as those enumerated above, and including, besides, cardiac syncope, embarrassed respiration or circulation, and panic fear, could easily cause an aviator to lose control of his machine and come crashing to earth. There must be a great variation in the reaction of normal subjects to the extreme changes of position and balance inseparable from aviation. Looking down from an extreme height, especially when insecurely placed, as on a church steeple or a precipice, and even when on secure footing, as a bridge, and viewing objects in rapid or irregular motion, such as storm-driven clouds, waves, masses of water tumbling over a fall or pouring through a flume, frequently cause dizziness to the point of complete lack of balance and loss of consciousness (German, Hoehen-Schwindel).

Extreme or irregular stimulation of the organ of vision, dazzling or blinding, again, may cause similar symptoms, and we know well that there are certain physico-mental states, such as retinal asthenopia, in which even slightly increased stimuli produce markedly abnormal irritation. Irregular illumination and motion of objects alone may cause dizziness and confusions, as seen in the common or field variety of "movie" headache and dizziness. A swinging mirror may cause a most marked sea-sickness, which, itself, the classical example of vertigo, is often relieved most effectually by excluding visual impressions, merely by closing the eyes. It cannot be too often repeated with emphasis that vertigo is a disturbance or partial loss of consciousness due to incongruous reactions, whether of labyrinth, muscle-sense or vision.

Our sense of balance, like our sense of space, is a conception based on complex data; an impression founded on sensory percepts, from three main sources. Confusion, evinced as dizziness or terminating in loss of balance, is the result of incongruity or misinterpretation of the total impression, though not necessarily of the falsity, however striking, of a single factor. Thus, seeing the world upside down or reversed in a mirror, does not disturb our sense of balance or our ideas of space, as we unconsciously make allowance for the new point of view. Compare with this the confusion that follows when we attempt to carry out or control even the simplest motions doubly reflected in a glass instead of under the direct guidance of the eye. It is the discrepancy between the messages from

eye, labyrinth and the pressure sense that causes confused states.

As normal labyrinths merely supply the possibility of vertigo and false sensations of direction and space (falling and past pointing), one might even venture the paradox that the safest aviators would be those with dead labyrinths. If we do not seriously go to this length, we at least may call attention to the lack of accurate data as to the nature of body balance under all conditions of rest and motion, and the rôle of the different senses, especially of vision, in its maintenance. Coming down to practical tests, just how much of a handicap is a dead labyrinth for accurate and delicate balancing? The absence of past pointing and of falling would indicate that it is an advantage rather than a drawback. Von Cyon showed, many years ago, that it was absurd to claim that the inner ear gives us accurate information regarding our relation to the vertical or as to our relative position in space. He gives numerous examples of illusions of position in space when we are not corrected by visual, musculocutaneous or splanchnic pressure sensations. The illusion of inclination of external objects viewed from a train when tipping on a curve, or from the inclined plane of a switchback gravity railway, are cases in point. The labyrinth does not teach the average subject when he is holding his head straight, that is, vertical, and the careful observer will note an inclination of from 2 or 3 to nearly 10 degrees in normal persons. The moment they are called on to adjust this error by visual impressions, the head assumes the correct vertical position. In other words, the body position is brought into correspondence with a *visually* sensed standard, in this case a vertical line, or what is just as good for practical correction, one at right angles to it, that is, horizontal. If the standard chosen is false, if the line is not exactly vertical, error will still be manifested. In other words, the labyrinth does not help a bit. In the absence of visual standards for correction, there is no doubt that pressure sensations, especially those in the cervical and lumbar vertebrae, and tonus or innervation stress in the muscles of the neck and back, are constant if almost subconscious data of balance and position. These factors, too, have been almost entirely neglected in favor of a one sided and exclusive attribution to the labyrinth of balance control functions.

Another point as to our instinctive concepts of balance: On terra firma, our changes in position take place in a horizontal plane, our usual balance is lateral, from side to side, and rarely fails. Forward and backward equilibrium is much less secure, and when we fall it is generally in one or the other of these senses. It is in accordance with these sensations that balance confusion or dizziness is usually attributed to false horizontal motion in the subject as well as in the outer world. Our sense of the vertical, it would seem, is called on in a greater degree in aviation. Possibly, also, the vertical semicircular canal plays a more important rôle. It would be instructive to learn whether there is such a thing as rotational vertigo in a vertical, instead of a horizontal, plane. Tumblers and acrobats, as well as bird-men, should be able to tell us something about it.

Within the last few days (from February 10 to 15), a number of aviators have lost their lives at various training camps by falls during trial flights. Undoubtedly these accidents, too, will be attributed to defective labyrinths, although it is to be assumed that by this time all applicants for the flying corps have been examined and put through rotational tests. As there is at least a question whether these tests are sufficient, it might be well to make practical observations of the conditions in flying and their reactions thereto, visual, as well as labyrinthine.

After all, an ounce of practice is worth a pound of theory, and the proof of the pudding is in the eating. In this connection, interest attaches to a letter,[1] from an American aviator in France, describing his own sensations in flight when unable to see, and dependent only on his labyrinthine "balance sense":

> While in the air at about 700 meters some low hanging clouds blew down, enveloping me completely and likewise losing me completely. For a half hour I wandered around vainly trying to get my bearings. . . . When you get into very thick clouds it is impossible to tell whether you are in *ligne de vol*, that is, flying level, for there is no horizon visible to gage on. Frequently, an aviator will come out into clear space and find himself on the verge of a wing slip.[2]

The American method of learning to fly always includes double control. The student rides with the instructor, who can take control away at any time. Therefore they go into the air at once. Under such conditions it should be easy for a trained observer to make notes — if only mental notes — of the pupil's reaction to unusual visual conditions.

While nothing has been said about vision in its relation to flying, a word as to this function may not be amiss. Normal distant vision, determined by test card, as expressed in the formula $^{20}/_{20}$, is, of course, a sensible requirement. There are, however, other factors to be considered, all of which are introduced into the practical problem of aviation, by the fact that sight must be used under very unusual conditions. Thus the question of hypersensitiveness to bright light, the sharpness of the sense of motion — a function of the periphery of the retina that has been studied but little — the acuity of vision in lowered illumination, the appreciation of contrast in form, color and light, all of which have an important bearing on the recognition of distant objects, especially those seen at unfamiliar angles which have no associations in shadow or relief, the rapid and accurate judgment of distance, direction, size, and depending on all of these, pace, make an interesting and practical problem.

1. New York Sun, Feb. 13, 1918.
2. In other words, his labyrinth was useless as an organ for balance and sense of space.

Inferior Pennyroyal Leaves.—Examination of samples of pennyroyal leaves, *Hedeoma pulegioides* (Linne) has disclosed that in a large number of instances, the product has been very carelessly collected and frequently contains large amounts of sand, stems and other foreign material. From the data at hand, the food and drugs bureau, United States Department of Agriculture, is of the opinion that properly collected pennyroyal leaves should contain not more than 10 per cent. of stems, not more than 16 per cent. of total ash and not more than 6 per cent. of acid insoluble ash (sand). The bureau, therefore, will consider as adulterated, under the Food and Drugs Act, any material which does not meet the demands of these figures. Further investigation may reveal the necessity of establishing a more rigid requirement, in which case due notice will be given. The Department of Agriculture proposes to issue the foregoing service and regulatory announcement concerning pennyroyal, but before doing so asks the opinions of interested persons as to the fairness of the ruling.

GENERAL ANALGESIA BY ORAL ADMINISTRATION *

JAMES T. GWATHMEY, M.D. (NEW YORK)
AND
HOWARD T. KARSNER, M.D. (CLEVELAND)
Captains, M. R. C., U. S. Army
FRANCE

This report is in the nature of a preliminary communication based on animal experiments and a sufficient number of clinical cases to support the conclusions of the animal work. It will be seen that general analgesia in which there is loss of sensation, with or without loss of consciousness, can be established for otherwise painful dressings and for short operations. The desirability of such a procedure becomes apparent immediately on entering a military hospital, and it has also a definite place in civil surgery.

Many war wounds are accompanied by fractures of bones, and the importance of keeping such patients quiet is universally recognized. If the dressing of such a wound is accompanied by severe pain, it is customary at this base to produce nitrous oxid-oxygen or light ether anesthesia for at least the first few dressings, necessitating in most cases, because of limitation of apparatus, removal of the patient to the operating room. This usually means pain and the danger of misplacing the bone fragments before and after dressings, as well as loss of time to surgeons, nurses and orderlies. General analgesia, produced simply and quietly without taking the patient from his bed, is the logical solution of this difficulty, and the technic evolved as the result of this study makes it possible to administer the analgesic by mouth in perfect safety. It is, of course, applicable to practically all forms of painful dressings, and is being developed to embrace short surgical operations, such as resection of a rib, removal of foreign bodies, and revision of wounds. In such operations, however, it may be necessary to supplement the analgesia with procain (novocain) for the skin incisions, a hypodermic injection of morphin, or even by light inhalation anesthesia.

Local conditions made it seem advisable to select rabbits as the animals for the preliminary work. The various substances were given by a stomach tube, after which the animals were immediately released and placed under observation.

It must be borne in mind that the experiments outlined in Table 1 were not conducted as experiments on the detailed physiology of analgesia, but simply for the purpose of demonstrating that analgesia can be produced by oral administration of proper agents. As will be seen, various combinations of drugs were not especially successful, and in rabbits the best results were obtained by the use of ether in oil. It was found, however, that this mixture produced an acute gastritis in the animals, but further investigation showed that olive oil alone produced quite as severe a gastritis as when combined with ether. Since olive oil is practically nonirritant to the human stomach, it was considered safe to proceed with the investigation on man. It was thought, however, that liquid petrolatum might be even less irritant in man, and accordingly the menstruum was changed to liquid petrolatum. The fact that there are said to be ether drinkers in Ireland and France, who apparently suffer no more than alcoholics, made it seem additionally safe to try the mixture of the two for clinical work. Additional support was adduced from the fact that in many hospitals ether is

* Aided by grants from the American Red Cross.

TABLE 1.—RESULTS OF EXPERIMENTS

Quinin and Urea Hydrochlorid

Weight of Animal Gm.	Amount C.c.	Result
2,200	4	No systemic effect.
2,105	8	
2,250	16	
1,795	30	Unable to stand after 10 minutes, and died in 8 to 17 hours.
2,215	60	

Trional (Dissolved in Alcohol, 1 Grain to 1.5 C.c.)

Weight of Animal Gm.	Amount Gr.	Result
2,230	1	Reflexes active
2,470	3	Reflexes abolished in 1 hour; still on feet
2,175	6	Reflexes abolished in 45 minutes, remaining so for 5¾ hours; full recovery in 8 hours
2,460	9 c.c. alcohol	Reflexes partly abolished (control)

Morphin Tartrate (in Water)

Weight of Animal Gm.	Amount Gr.	Result
1,810	1	No appreciable effect
2,560	2	
2,000	3	
2,050	4	

Paraldehyd

Weight of Animal Gm.	Amount C.c.	Result
1,710	2	Dropped in 15 min.; slept 4 hrs.; no analgesia
2,220	4	Dropped in 15 min.; analgesic 6 hrs.; complete recovery
	6	Died in 15 hours

Ether in Olive Oil, 50 Per Cent.

Weight of Animal Gm.	Amount C.c.	Result
2,430	5	Reflexes only partially inhibited; never off feet
2,170	15	Reflexes partially inhibited
2,420	30	Reflexes completely abolished, apparently full recovery; on repetition of dose next day, animal died in 30 minutes; necropsy revealed dilated stomach with congestion, erosion and submucous petechiae
2,060	20	Reflexes abolished in 6 minutes; apparently complete recovery in 1 hour 16 minutes; killed after 24 hours; necropsy revealed same findings as in preceding animal
2,095	25	Reflexes abolished in 5 minutes; apparently complete recovery in 2 hours; killed after 24 hours, with same result as in preceding animal.
.....	30	Olive oil without ether; no effect; killed after 24 hours; same condition in stomach as preceding animal

Ether in Olive Oil, 25 Per Cent.

Animal	Amount C.c.	Result
No. 1	30	Down in 12 minutes; reflexes not abolished
No. 2	20	Incoordinate
No. 3	10	No apparent effect

All three animals were killed after 24 hours; stomach not dilated, fundus much congested and covered with much adherent mucus.

Paraldehyd Plus 25 Per Cent. Ether in Olive Oil

Weight of Animal Gm.	Amount	Result
2,100	1 c.c. paraldehyd	No effect
1,880	10 c.c. ether in olive oil	Down in 5 minutes; reflexes partially inhibited; practically restored in 10 minutes; recovery in 25 minutes
2,170	Combination of foregoing	Down in 5 minutes; reflexes abolished in 10 minutes; recovery in 30 minutes
1,950	Paraldehyd 2 c.c. and 25 per cent. ether in olive oil 20 c.c.	Down in 5 minutes; slept for nearly 2 hours
2,060	25 per cent. ether in olive oil 20 c.c.	Down in 5 minutes; slept for 1 hour

Other Combinations

Weight of Animal Gm.	Amount	Result
2,000	Morphin tartrate ..... 1 grain Ether ..... 2.5 c.c. Liquid petrolatum .....7.5 c.c.	All incoordinate, but no other effect
1,965	Morphin tartrate ..... 1 grain Paraldehyd .....1 c.c. Liquid petrolatum ..... 2 c.c.	
2,010	Paraldehyd .....1 c.c. Ether .....3.75 c.c. Liquid petrolatum.... 11.25 c.c.	

being applied as a local dressing without deleterious results. Finally, a 65 per cent. solution of ether in oil has been used in many thousands of cases of oil-ether colonic anesthesia without any sign of local irritation to rectum or colon, which has been proved by proctologic examination, as well as by the fact that no case of dysentery or bloody diarrhea has been observed.

TABLE 2.—COMBINATIONS TRIED CLINICALLY

Formula 1:	
Ether	4 fluidrams
Liquid petrolatum	4 fluidrams
Peppermint water	5 minims
Formula 2:	
Paraldehyd	1 to 3 fluidrams
Ether	
Liquid petrolatum, equal parts, enough to make	1 fluidounce
Peppermint water	5 minims
Formula 3:	
Ether	3½ fluidrams
Liquid petrolatum	4 fluidrams
Peppermint water	5 minims

CLINICAL DATA

The combinations given in Table 2 have been tried clinically. The mixtures containing paraldehyd were disagreeable to the taste and smell, the ether-oil very much less so; but the difficulty was soon overcome by following a suggestion by Major W. E. Lower. An ounce of port wine is placed in one glass and the analgesic in another glass. The patient takes a mouthful of wine, holds it for about thirty seconds, rinsing the mouth so as to get the aroma in the upper air passages and the taste well established, and then swallows the wine. The ether mixture is then taken and is followed *immediately* by the remainder of the wine. Several wines and liquors were tried, but the port wine was found to be the most satisfactory. One of us (J. T. G.) and several other physicians have taken this "Lower sandwich" and have found it not to be disagreeable and to produce analgesia. As will be seen from the case reports, numerous patients have been given it with excellent results. Only one patient has been nauseated, a man who was violently opposed to taking the wine. In contrast to that case, it was given to another man, who had repeated attacks of vomiting, immediately after an attack. His dressing was done without pain, and his vomiting ceased permanently. All the patients have been able to take food and water shortly afterward, and even in patients much exhausted by infection, there have been no deleterious after-effects. It was soon found that the paraldehyd served no useful purpose, and most of the dressings have been done with Formula 1. While it is well not to give the analgesic immediately after a meal, no especial preparation of the stomach is necessary.

TABLE 3.—REPORT OF OTHER DRESSINGS

Nature of Dressing	Time of Administration P. M.	Time of Dressing P. M.	Result	Pulse Before	Pulse After	Respiration Before	Respiration After	Pupils	After-Effects
Deep wounds of both legs; deep drains	2:32	2:50	Good	84	84	Normal		No effect	None
Large, excised, painful back wound	2:32	2:48	No pain	92	112	Normal		No effect	Nauseated and vomited
Stump, adherent dressings (3 times)	3:03	3:30	.....	120	100	32	20	No effect	None
Through and through wound of leg, with drain	10:00	10:20	Good	No change		No change		No effect	None
Abscess of leg; multiple incision	10:00	10:20	Good	No change		No change		No effect	Patient cried out but remained flaccid; had little pain
Through and through drain; leg	11:00	11:15	Poor	No change		No change		No effect	Only half dose given; patient jumped and had pain
Stump dressing ..... Drains; foot	11:15	11:30	Fair One-half fluidram had no effect whatever.	90	99	No change		No effect	Patient cried out, but had less pain than when done before

Under the general direction of Major W. E. Lower, the following cases were dressed in No. 9 (Lakeside, U. S. A.) General Hospital, American and British Expeditionary Forces, by Lieutenants B. I. Harrison and W. R. Barney. All dressings were done without the removal of the patient from the ward.

REPORT OF CASES

CASE 1.—A soldier, aged 36, who had received a gunshot wound of the right thigh, and had an infected, compound, comminuted fracture of the femur, had found previous dressings very painful, and the splint could not be changed without general inhalation anesthesia. He was given paraldehyd, 1 fluidram; ether, 3 fluidrams, and liquid petrolatum, 4 fluidrams. In fifteen minutes he fell into a light sleep. The wound was dressed, the splint removed, the through and through wound irrigated with ether, a gauze drain inserted down to the femur and a Thomas splint applied with extension. The patient talked during the dressing, felt practically no pain, and suffered no nausea or other unpleasant after-effects. The dressing was repeated in a similar manner every other day for four dressings, and in none of them was there pain or any alteration of pulse or respiration.

CASE 2.—A soldier, aged 28, who had a gunshot wound of the left thigh, with a compound comminuted fracture of the femur, was given the same mixture as in Case 1. He fell asleep after twelve minutes. The Thomas splint was removed and replaced, the gauze packing removed, the wound irrigated with ether, and another gauze pack reinserted. The patient groaned when the pack was reinserted, but after regaining complete consciousness he said that he had felt no pain during the dressing. Three subsequent dressings were done on alternate days with no nausea or other after-effects nor alteration of pulse or respiration. The patient complained of the taste of the mixture, but said it was far to be preferred to the extreme pain of the dressings.

CASE 3.—A soldier, aged 23, with gunshot wound of the left leg, a compound comminuted fracture of the tibia and fibula, a through and through infected wound, was given the same mixture. He fell asleep after fifteen minutes and slept for thirty minutes during which the dressings were done. The Thomas splint was repadded, the packing was removed and reinserted, and ether irrigation was done. Two dressings were done without ill after-effects.

CASE 4.—A soldier, aged 39, who had sustained a gunshot wound of the left thigh, through and through, with a compound comminuted fracture of the head of the femur, had found all previous dressings extremely painful. He was given paraldehyd, 2 fluidrams; ether, 3 fluidrams, and liquid petrolatum, 3 fluidrams. The wound was cleansed, and the packing removed and reinserted. The patient groaned at one time, but had no later recollection of having had pain. The pulse increased from 108 to 110, and the respiration from 26 to 28. There was no nausea. Three subsequent dressings

on alternate days were equally painless and without ill after-effects.

CASE 5.—A soldier, aged 23, who had received a gunshot wound of the right leg, with an infected, compound comminuted fracture of the tibia, and had found dressings very painful, was given the same mixture as in Case 1. Dressing was done with much less pain than before. The pulse rose from 100 to 116, and respiration from 24 to 26. A few days later the dose was repeated, and the patient slept through the dressing. There were no ill after-effects.

CASE 6.—A soldier, aged 27, with a gunshot wound of the thigh and a streptococcus infection, but no fracture, was given morphin tartrate,[1] ¼ grain; ether, 3 fluidrams; liquid petrolatum, 3 fluidrams, and paraldehyd, 2 fluidrams. Multiple superficial incisions were made for drainage with very slight pain, probably because of the dressing following too soon after administration of the mixture. The pulse rose from 110 to 120. The patient was vomiting before the mixture was given, but retained it and did not vomit afterward.

Several other dressings are briefly summarized in Table 3.

Following these experiments, one of us (J. T. G.) was ordered to a casualty clearing station. The following cases from the service of Captain D. C. Taylor, R. A. M. C., illustrate some of the possibilities of the method. Two almost parallel cases of penetrating wounds of the knee occurred, November 15.

Patient 1 was given the usual inhalation ether anesthesia with the Shipway apparatus. Patient 2 was given 1 ounce of 50 per cent. ether in liquid petrolatum. Thirty minutes later a supplementary 2 drams of chloroform were given by inhalation during the operation. The knee joint was opened, pieces of comminuted patella removed, and the joint was irrigated with saline solution and closed. Both patients rested quietly for one hour after operation. Patient 1 then complained and required a hypodermic injection of morphin for the control of restlessness and pain. About the same time Patient 2 awakened, drank some milk, and fell asleep again. Both patients slept until breakfast time. Patient 1 drank some tea, but refused other food. Patient 2 had tea, porridge, bread and butter. Neither patient vomited afterward, and both were evacuated to a base hospital in about four hours. Two other patients of Captain Taylor's were given each a double dose of the mixture (2 ounces of 50 per cent. ether in liquid petrolatum). Each required only a few additional drops of inhalation anesthesia. The resultant analgesia after operation was a little more prolonged than with inhalation anesthesia. One of these patients was ready for operation in ninety seconds and required 1 dram of chloroform given drop by drop to "carry on" an operation lasting thirty minutes.

The substitution of chloroform for paraldehyd has been found to make even a more satisfactory mixture than the preceding. The following formula has been used in approximately thirty cases: chloroform, from ½ to 1 fluidram; ether, 3½ fluidrams; liquid petrolatum, 3½ fluidrams. It is not recommended at the present time to exceed this. It is our opinion that the toxic effect of this small amount of chloroform can be disregarded in military surgery.

COMMENT

The physiology of "general analgesia" by oral administration has not been subjected to an exhaustive investigation, but certain important facts should be borne in mind by those who contemplate using the method outlined. The oil and ether mix perfectly and do not separate into layers. Baskerville has shown the rate of evaporation from minute to minute to be constant so as to form a straight oblique line when plotted out. This holds true with different percentages of ether in the oil, in all cases assuming a constant temperature and exposed surface. It is impossible, therefore, for the patient to get an overdose at one time and an insufficient amount at another time. The total amount is not absorbed at one time; if it were, the administration of 2 ounces of 50 per cent. ether in oil would produce complete anesthesia, as there would be liberated 1 ounce of ether. Only a light analgesia is obtained which, for operative procedures, must usually be supplemented in some way. Naturally, the surface for evaporation is greater in the stomach than is the case in the colonic method, and the absorption of ether is more rapid. The total amount that may be given with safety by this method has not yet been determined. It is considered advisable for the present to supplement the method either by local anesthesia or the administration of small amounts of anesthetic by inhalation. But it is important to remember that the patient is as safe by this method as if the ether were in a container outside the body. All anesthetics are analgesics, and before the danger zone is reached, the patient must become anesthetized; hence the patient in the analgesic stage is separated from the danger zone by the period of anesthesia. We consider analgesia by this method as safer than any method of anesthesia. If the anesthetist carries his patient to the "blear-eyed" snoring stage, he defeats the object for which this special method was devised, the object being to take advantage of the analgesic stage of any and all anesthetics used. If adopted, it would release from the routine of administration of anesthetics a certain number of physicians who now, in military hospitals, devote their entire time to that work.

CONCLUSIONS

It is felt that so far as one can do so in a preliminary communication of this sort, the following conclusions are justified:

1. General analgesia is safer than general anesthesia.

2. Fifty per cent. ether in liquid petrolatum or other bland oil is probably the safest general analgesic, has apparently no deleterious effect on the stomach, and is not followed by the nausea and vomiting that frequently accompany inhalation anesthesia. It may be given without unpleasant taste when "sandwiched" between mouthfuls of port wine.

3. The method is especially indicated during the dressing of painful wounds without taking the patient from his bed or ward, and when supplemented, can be employed for surgical operations.

1. Morphin tartrate is official in the British Pharmacopeia. Its action d dosage is the same as morphin sulphate.

Scientific Adulteration.—The amount of detail work required in making analyses of foods and drugs is increasing greatly. The manufacturing firms practicing the more skilful forms of adulteration often have experts who sophisticate scientifically. The finished product is so artfully adulterated that it is sometimes very difficult for the analyst to detect the fraud with certainty. Often it is necessary to make many analyses of products of known purity in order to determine the maximum limit of the variation of certain constituents. Again, an inspection of the materials at the source of production is needed. For instance, water is the cheapest and most readily available adulterant for use in sophisticating foodstuffs, and by the addition of a small per cent. in excess to a canned fruit or vegetable, an increased profit is assured and detection is often difficult.—Report of Food and Drug Department, Kentucky.

SANITATION OF THE MARINE BARRACKS, QUANTICO, VA.

WITH SPECIAL REFERENCE TO THE METHODS OF CONSERVANCY EMPLOYED

W. L. MANN, Ph.B., A.M., M.D.
Passed Assistant Surgeon, U. S. Navy
QUANTICO, VA.

The medical officer, for obvious reasons, was the first of the military personnel to report on this station; about 200 laborers, arriving a few days before, had arranged for the pit system of latrines. On account of the potential menace of these fecal pits and the possibilities of their being dug up by pipe laying, road building, etc., they were ordered filled and the pail system of latrines susbtituted.

In a few days, Marines began to arrive, and in such numbers as to somewhat tax the sanitary service. On recommendations of the medical officer, by maintaining several hundred laborers working night and day, it was possible to complete the water carriage sewerage system in five weeks. The original estimate for this was from three to four months.

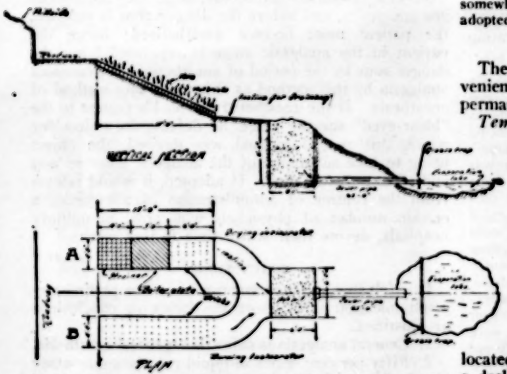


Fig. 1.—Semipermanent incinerator: The incinerators are built on the side of a hill with a slope of about 45 degrees. The garbage is emptied on strainers in Incinerator A. The use of boiler plate insures draft and prompt drying of the solids. The solids are then shoveled into Incinerator B and burned. The liquids run to the bottom of the incinerator and are sterilized and partly evaporated by the hot bricks. They then percolate through 8 feet of ashes, and are then conducted through a 6-inch sewer pipe to the evaporation lake, which is periodically burned over with crude oil. This system may appear complicated, but simpler methods of disposal were insufficient.

The camp site was found to be well situated, with the exception of marshes and swamps existing in proximity. This objection, however, was remediable; about 300 acres of swamps have since been drained. Quantico, according to the local physicians, had the reputation of being the "worst place on the Potomac for malaria."

The living quarters are of one story, are well ventilated and are built on the unit system, in accordance with recommendations of the Bureau of Medicine and Surgery. Their limited capacity (forty occupants) minimizes the possibility of a spread of infections.

The hospital for the station consists of six wards with a capacity of about 200 beds. This was built, equipped, organized, and occupied in the short period of forty-three days.

The post surgeon was appointed special health officer by the state board of health. This gave him the necessary authority to clean up the municipality and enforce such sanitary regulations as were deemed necessary.

The proximity to Washington enabled this station to secure the best of expert advice on subjects directly or indirectly connected with sanitation.

This station has had a maximum personnel of about 7,000 Marines, and it is estimated that about 15,000 have been stationed here at some time or another in the first six months of its occupation. During this period the following results may be noted:[1]

1. There has been no death from illness.
2. No epidemic tendency of the infectious diseases has occurred.
3. There has been an absence of any cases of serious illness, such as typhoid, meningitis and pneumonia.
4. The daily morbidity rate of malaria figures about 0.004 for the military personnel, although the malaria season was somewhat advanced before the completion of the measures adopted for mosquito control.

CONSERVANCY

The methods of conservancy employed may be conveniently divided into temporary, semipermanent and permanent procedures.

Temporary.—During the stress of the first few days, the sanitary laborers were instructed to remove and burn all excremental and garbage refuse. They were found later to have inaugurated a system of refuse incineration that was so simple, and worked so admirably, that no attempt at building regular incinerators was started until about six weeks later, when the removal of the place of incineration was necessitated by the proximity of the buildings under construction.

This method of garbage destruction consisted of a series of six parallel natural ravines located on the south side of a 15-foot bluff which had a declination of from 50 to 60 degrees. Two of the ravines were used each day, one for the kitchen and one for the excremental refuse. The garbage wagon drove up to the end of the bluff and dumped the refuse on a small pile of brushwood, which acted as a strainer to retain the solids, allowing the liquid to be partly absorbed while the excess drained downward and was collected immediately beneath the brushwood in a series of small pools 2 or 3 feet in diameter. These pools were increased in size and number as the necessity demanded. The fire was started below the lowest collection of liquid and was then gradually built upward. It was found that the lowest collection of liquid received the maximum heat, being nearest the fire, and tended to evaporate first. Consequently, after from one to two hours, it was possible to pile fuel upward gradually and to consume completely the dry and semicarbonized matter remaining at the upper portion of the ravine, leaving the soil hard, dry and sterile. At the close of each day these ravines were easily cleaned by raking the débris downward, using the tin cans and the ashes to fill up small swamps.

Subsequent information on the subject shows that this method of incineration is somewhat similar in

1. This article was written, Dec. 1, 1917.

principle to the inclined plane incinerators described by Lelean[2] in his "Sanitation in War." As the heat penetrates only 2 or 3 inches of the soil, a portion of the infected fluid may escape this sterilizing action of the heat. This, however, depends on the permeability of the soil (here it is clay), and the rapidity with which the fire is built upwards.

This mode of disposal has the following advantages:

1. Simplicity: One Virginia negro effectively and efficiently disposed of the excremental and garbage refuse of 2,000 persons.
2. Availability: Almost every terrain contains a sloping hillside or small embankment that may be utilized.
3. It requires a minimum amount of fuel, as the fire is below and the heated air rises and comes in direct contact with the liquid and semisolids.
4. The square area of surface of the fluid which is exposed to the heat is greatly increased, because of the earth's absorption, and this facilitates rapid evaporation.

Semipermanent.—It was at first possible to dispose of all liquid waste by evaporation; but shortly afterward, when supervision of the disposal for the municipality was assumed, this method became impracticable. Owing to the unusual amount of sullage water from the numerous small restaurants, the garbage at times contained 90 per cent. liquid. Soakage pit methods proved a failure on account of the low degree of permeability of the soil; and disposal in the river, because of the tides, proved equally unsatisfactory.

Figure 1 represents the final type of temporary incinerator evolved from the original idea of hillside incineration. Incidentally it might be stated that many varieties of field incinerators were constructed either for demonstration or for experimental purposes.

Permanent Arrangements.—Each kitchen has its individual incinerator, a type slightly modified from those used by the Army. This method obviates collection, storage and transportation of the garbage, by permitting immediate destruction in situ. Theoretically, the idea is excellent, but it has been our experience that these incinerators are not economical in fuel and that their efficiency varies and is dependent, in a large measure, on the personal equation of their operators.

Recently a large central waste destructor has been built. This requires a minimum amount of fuel, and the burning garbage automatically furnishes sufficient hot water for cleaning the cans. The "two can system" allows the truck on each trip to replace the used cans with cleaned receptacles.

The application of a well known principle causes the operation of this incinerator to be nonodorous. It is a device patented by the corporation selling it. Briefly, the green garbage is charged through hoppers into the "evaporation chamber." Here the garbage is partly dehydrated, and by removal of the handle bars the garbage is then thrown into the "distillation chamber." The heat here is sufficient to drive off the volatile hydrocarbons, which gases are then drawn through gas ports into the "combustion chamber," the temperature of which is sufficiently elevated to produce ignition of these. The solid fuels or fixed carbons remaining are then raked on the coal fire and there completely incinerated.

At present the water carriage sewerage system empties into the Potomac River. Plans are under way for the construction of a septic tank, with treatment of the effluent preliminary to the discharge into the river.

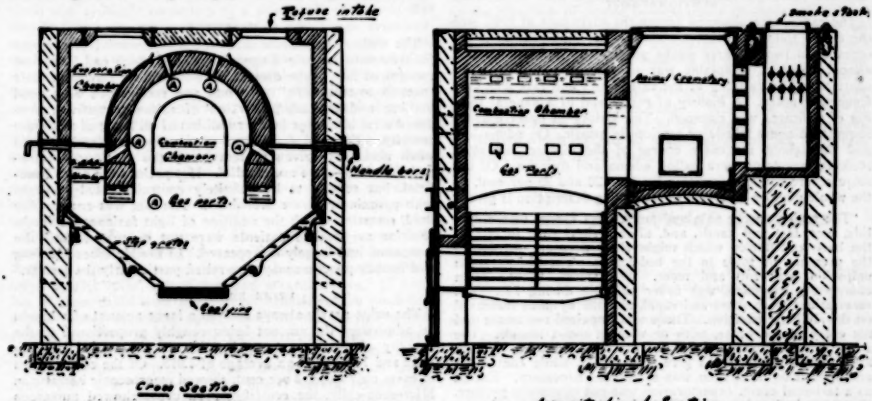


Fig. 2.—The garbage is placed in the refuse intake and dehydrated in the evaporation chamber. All vapors arising from this drying chamber are drawn by the chimney draft, through the gas ports, into the combustion chamber. The partly dried garbage is then charged into the distillation chamber by withdrawal of the handle bars. Here the heat is sufficient to distil the volatile hydrocarbons, which pass into the combustion chamber, through the gas ports, and are ignited. The fixed carbons remaining are burned on the step grates. The combination of the combustion space for both the solid matter and the volatiles insures the highest concentration of heat, and as all vapors and gases pass through this zone, the malodorous vapors are destroyed.

2. Lelean, P. S.: Sanitation in War, Philadelphia, P. Blakiston's Son & Co., 1917.

Accident Insurance and Ptomain Poisoning.—Death from ptomain poison contained in mushrooms supposed to be edible, and eaten by the insured without negligence, is held within a policy insuring against death by accidental means not resulting from or contributed to, directly or indirectly, wholly or partially, by disease, in the Indiana case of *United States Casualty Co.* v. *Griffis*, L. R. A. 1917 F, 481.

CLINICAL AND PATHOLOGIC NOTES ON TRENCH NEPHRITIS

W. H. TYTLER AND J. A. RYLE

(Abstract from the Quarterly Journal of Medicine, London, 1918, 11, p. 112)

These British officers describe the clinical features in 150 cases of trench nephritis observed during the early stages in a casualty clearing station. They also record the results of pathologic examination of cases which terminated fatally within the first three weeks of the disease. They were all cases presenting constitutional symptoms as well as albuminuria, no cases being included of the prevalent albuminuria without indisposition, and none of the so-called "lower tract" cases. All the patients were employed in the forward area and the great majority actually in the trenches. There was commonly no history of any predisposing illness, nor were there any concurrent epidemics, such as scarlet fever or tonsillitis, which could be considered to bear on the etiology of the disease. The seasonal incidence showed a marked increase during the winter months.

SYMPTOMATOLOGY

The cases were observed during the early part of 1916, and the entire following winter. The history was usually of an onset from two or three weeks previous to admission. The almost constant complaint was of shortness of breath on exertion, while swelling of the extremities and face was also frequently noted. A history of cough and of a general feeling of unfitness was common. The history of onset did not suggest an acute febrile or septicemia attack. On admission, and throughout the early course of the disease, the most striking symptoms were pallor, edema and dyspnea. Of the more severe cases, comprising between 20 and 25 per cent. of the whole number observed, the following description is given:

"The patients were pale and puffy, with edema of the eyelids, face, feet and hands, and, after a short time in bed, of the back and flanks, which might show deep creases due to the pressure of folds in the bedclothes. The abdomen, on palpation, was full and tense. The spleen, though often enlarged postmortem, was never palpable during life. The respirations were short and rapid, and the dyspnea increased on the slightest exertion. There was impaired resonance and air entry at the bases, with or without moist sounds. The worst cases showed cyanosis of the lips and ears. Nearly all required a bedrest to give them relief, while continuous administration of oxygen was sometimes necessary. Except as a terminal event, expectoration was not commonly profuse. One case had a large bilateral pleural effusion, but in the remainder of the series pleural effusion was uncommon, and when present not of large amount."

The bronchitis, as a complication of the nephritis, was usually present on admission, "and was undoubtedly a prominent cause of the severe respiratory symptoms." The dyspnea was frequently urgent and distressingly obvious. So predominant were the respiratory signs that, until the condition became more generally recognized in the field ambulances, cases were not commonly sent down with a diagnosis of acute bronchitis or of pneumonia. From clinical evidence the authors consider the dyspnea "to be primarily due to pulmonary edema, and this view was substantiated by the necropsy findings. Bronchitis was undoubtedly a great contributory factor, and swelling of the abdomen and of the tissues of the abdominal wall probably played a part." A striking resemblance was frequently noted between the respiratory symptoms in trench nephritis and those seen in cases of gas poisoning.

The pulse, in nearly all cases, was full and bounding, and the blood pressure was generally above 140 mm. of mercury. One patient showed subconjunctival hemorrhages. Pyrexia was not the rule save in relation to the bronchitis. A small group of cases, however, without apparent bronchitis, showed temperatures ranging from 100 to 104 F., during the first week of the disease. Another small group of cases showed the respiratory picture described above, with the addition of prolonged expiration and the general symptoms of severe asthma, but with complete absence of external edema. The presence of albumin and casts in the urine, and the relatively small amount of expectoration, served to distinguish this group from the cases of simple capillary bronchitis which were so numerous during the winter. In spite of the anasarca and the pulmonary edema the patients usually passed a quantity of urine not much below the normal amount. None of the cases with respiratory symptoms and edema showed evidence of uremia.

In the fatal cases death usually occurred during the second week. In such cases the terminal picture showed increased cyanosis, and very severe dyspnea with profuse frothy expectoration. Death in all the fatal cases was apparently due to respiratory failure.

PROGNOSIS

The mortality among cases of nephritis admitted to this casualty clearing station during the winter of 1916-1917 was 4 per cent. All of these fatal cases were of the respiratory type, and in all but one there was associated bronchitis. "The immediate prognosis, then, in the absence of this very common complication, may be said to be good in the dyspneic form of the disease. The uremic type, from the experience of those who have seen more of it, shows a higher mortality rate."

TREATMENT

The authors emphasize that "the first essential in successful treatment is early diagnosis. Cases which had been first recognized late in the disease were in general slower in their reaction to treatment." Warmth and rest in bed with good nursing and the administration of saline purgatives, produced a rapid change in the condition of all cases of moderate severity. Postural treatment of the dyspnea, and oxygen when necessary—given preferably by the continuous intranasal method—gave much relief. Hot packs were often beneficial, but seemed to be definitely contraindicated in cases with pyrexia or severe bronchitis. The diet was customarily fluid, sometimes with the addition of light farinaceous foods. "So far as possible patients were not evacuated until the symptoms had largely disappeared. In uremic cases bleeding and lumbar puncture may give relief, particularly the former."

URINE EXAMINATION

The urine nearly always showed a large amount of albumin on admission, the amount being roughly proportional to the severity of the symptoms. Specific gravity varied between 1.012 and 1.018, with an average of 1.015. Of the entire series of cases only about 2 per cent. showed macroscopic hematuria. Microscopically, the centrifugalized urine showed numerous tube casts, red blood cells and leukocytes. The number of casts, however, was usually smaller than in severe acute nephritis as seen in civil life.

THE BLOOD

Urea in the blood varied from 0.05 to 0.15 per cent., with an average of 0.08 per cent. The amount did not seem to bear any constant relation to the amount of urea in the urine. Leukocytes in a small series of cases were not definitely increased, the usual figure being between 8,000 and 10,000. Higher counts were not observed save with severe bronchitis.

PATHOLOGY

The morbid anatomy in trench nephritis is based on a series of twenty-five necropsies. The most constant gross changes observed were those seen in the lungs and spleen, consisting, briefly, "in an extensive pulmonary edema, often of rather characteristic nature and usually accompanied by a purulent bronchitis, and in the presence of characteristic hemorrhages throughout the spleen. The kidneys constantly showed to the naked eye only the most slight and indefinite changes. "It was seldom that one could attempt even a guess at the nature of the disease from the gross examination of the kidneys alone." They were seldom enlarged, and the only change suggesting disease was a slight pallor and opacity of the cortical tissue. The cortex was seldom swollen or wider than natural. A few of the kidneys showed some congestion so that the cortical vessels stood out as red

streaks against a pale background. In some cases swelling of the glomeruli, causing them to stand out from the cut surface like minute glistening drops, was observed. This change, however, was not constant. Hemorrhagic lesions were not infrequently seen elsewhere than in the spleen. Several cases showed petechial hemorrhages in the renal pelves. Two cases showed numerous subepicardial, and one case numerous subpleural petechiae. Two cases showed large cerebral hemorrhage, one central and one superficial. The heart was often considerably dilated when the lung involvement was extreme, and such cases showed venous engorgement of the abdominal viscera. In most cases congested lymph nodes were found at the roots of the lungs, and often in the mesentery. The brain in some cases showed moderate subarachnoid edema.

ETIOLOGY

Bacteriologic examination was carried out on material from sixty cases taken during life, and from sixteen of the series of twenty-five necropsies. Blood cultures were made on a series of ten cases, all in the early stages of the disease, and all showing pyrexia. One case yielded an organism which was apparently a pneumococcus, growing in short chains with definite capsules. "The presence of this organism in the blood was probably secondary to a pneumonic process in the lung." The cultures in the remaining nine cases remained sterile. In a series of forty cases cultures were made from the urine. In twenty-four of the forty cases the urine yielded streptococci of the enterococcus or fecal type. These organisms produced a luxuriant, confluent, often opaque growth on serum free agar—sometimes simulating a staphylococcus—and on blood agar produced colonies up to 1 mm. in diameter, rather opaque by transmitted light, with a narrow green halo, and reflected light often whitish, the halo then appearing as a blackish background to the colony. Under the microscope they showed short chains of often elongated cocci. In most of the cases hemolytic streptococci were present as well.

The urine from a series of fifty control cases was then examined. These embraced many conditions, the diagnoses including diarrhea, trench fever, pneumonia, cerebrospinal fever, scarlet fever, trench feet and several others. In only five of these cases were streptococci isolated which produced a green color on blood agar. Most of the control urines yielded hemolytic streptococci. In twelve cases cultures were made from the throat. The cultures from ten of these cases yielded streptococci producing fine dryish colonies on blood agar, with a pronounced green halo. Several cases also yielded pneumococci. In no case was an organism of the enterococcus type recovered. In sixteen cases cultures were made at necropsy from heart blood, lungs, spleen and kidneys. In nine cases streptococci were isolated from the lungs, in six cases from the spleen, and in two cases from the kidney. Cultures from heart blood remained sterile in every case. The streptococci from the lung were all of the type described as recovered from the throat cultures, and were never of the enterococcus type. The organisms isolated from the spleen and kidney, on the contrary, were in general similar to those found in the urine of nephritis cases, and may be considered as enterococci. In one of the two cases in which an organism was isolated from the kidney a similar streptococcus was recovered from the spleen also, and in this case streptococci could be demonstrated in the tissues. During the season at which influenza was prevalent influenza bacilli were isolated from the lungs of two cases and from the kidney of a third. Broth cultures of three organisms from the urine, three from the throat, and one from the spleen were injected subcutaneously into mice, the dose being 1 c.c. All the animals died in from three to five days, but in no instance could the streptococci be recovered from the blood or organs.

SUMMARY

In the early stages of the attack general edema, dyspnea, albuminuria with casts, red corpuscles and leukocytes in the urine, which is not, or but very little, reduced in amount, were the principal features. In the fatal cases death may be caused by respiratory failure from edema of the lungs, usually associated with severe bronchitis, the latter being regarded as secondary. The characteristic changes were found in the lungs, the spleen and the kidney, in all of which capillary thromboses were present, most marked, however, in the lungs and in the kidney associated with acute glomerulitis. The most marked changes were found in the lung. There was a diffuse edema with some fibrinous and cellular exudate, the condition being really one of pneumonitis rather than edema in the usual sense, and associated therewith was a bronchitis which the authors regard as secondary. Bacteria were not found in the lungs except in the bronchi, in which were streptococci of the mouth type. Beside the thromboses in the spleen there were many small hemorrhages, and hemorrhages were also found in the serous membranes and in two cases in the brain. The changes in the kidney were less marked than expected from the symptoms, being principally inflammatory changes in the glomeruli. In nearly two thirds of the cases, streptococci of the intestinal type were found in the urine. It is apparent, both from a clinical and anatomic point of view that the changes in the lungs are the predominating ones, and there is good reason to doubt that conditions in the kidneys would explain the phenomena of trench nephritis—a view which should have an important bearing on the direction of future investigations of these conditions. It is of interest that the changes in the lungs being of an inflammatory nature, but not associated with bacteria, apparently favor the view that inhalation of gas and other fumes may play a positive rôle in trench nephritis. The authors emphasize, however, that the disease may develop in places where such inhalation is excluded. While the condition in the lungs may be due in part to the general edema, features are present which indicate an inflammatory process, the origin of which remains unexplained.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DICHLORAMINE-T. — Paratoluenesulphonedichloramide. —$CH_3.C_6H_4.SO_2NCl_2$.—The dichloramide of paratoluenesulphonic acid, $CH_3.C_6H_4.SO_2OH$.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 157.

Dichloramine-T, Monsanto.—A brand of dichloramine-T complying with the N. N. R. standards.

Manufactured by the Monsanto Chemical Works, St. Louis. No U. S. patent or trademark.

Manufacture of Organic Chemicals.—In *Science*, March 8, 1918, Dr. Roger Adams describes the activities of the laboratories of the University of Illinois in making rare and much needed chemical products for research and teaching work for the laboratories of the United States, the supply of which was formerly obtained largely from abroad. Eight different chemicals in amounts valued at $5,000 were made, and more than thirty laboratories and distributing houses were supplied. The work has expanded since so that about 120 different products have been supplied outside the laboratory, valued at about $9,000, the products being distributed in amounts of a few grams up to pounds. Among the different chemicals synthesized which were in demand in the laboratories are dimethyl glyoxime, nitroso beta naphthol, cupferron, nitron and ninhydrin, besides many others. They have all been tested in comparison with a well known standard product, and in all instances have been found as good and in many instances much better.

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SATURDAY, APRIL 6, 1918

THE MILLING PROCESS AND BERIBERI IN WAR TIME

Beriberi began to become a disease of prominence in the Far East when polished or highly milled rice began to take the place of the natural brown rice. The difference between these two forms of the cereal lies in the fact that modern milling removes the embryo and a considerable part of the pericarp of the husked grain. Since the rice bran or rice polishings representing the removed portions contain substances essential to nutrition, a deficiency manifested itself through the use of the polished rice whenever it constituted a very considerable part of the ration. To the indispensable component of the polishings the name "vitamin" has been given. Beriberi has been the most characteristic instance of so-called "deficiency disease," because the origin of the dietary deficiency in an inadequate diet is now clearly understood, and because its most prominent symptoms can be both reproduced experimentally by an exclusive diet of polished rice and cured by administration of suitable sources of vitamins. On the basis of this knowledge, beriberi induced by the undue use of polished rice has been averted in many quarters in the East and much suffering has been prevented by the judicious selection of the diet, as for example in parts of the Philippines. Indeed, it might be supposed that except for the uncontrollable habits of certain primitive peoples, the danger of the occurrence of beriberi on a large scale is practically a matter of the past in all countries and climates.

The history of the present war has shown, however, that this is by no means the case. Beriberi was reported to occur among the British forces in the Dardanelles and Mesopotamia during the autumn and winter of 1915. Owing to the exigencies of the military situation, many persons in those regions subsisted for considerable periods mainly on canned meats, jam and white bread, or crackers baked principally from white flour. This has raised anew the question of the distribution of vitamins in the various parts of the wheat with a view to ascertaining whether the parts of this cereal removed in milling white flour are peculiarly valuable as sources of antineuritic vitamin.

During the "roller" milling of wheat, the brittle pericarp is broken up by the rollers into bran, while the embryo, being soft and oily, is squeezed out flat. In the sieving and fanning of subsequent operations, the bran and embryo are separated so that each may be obtained as such and examined. In the case of rice milling, however, the polishings contain a mixture of pericarp and embryo, since these are not so easily separated by the mechanical processes in technological use. The embryo of rice can, however, be removed alone by more laborious methods. In an elaborate study conducted at the Lister Institute for Preventive Medicine in London, Chick and Hume[1] have demonstrated by means of curative experiments on polyneuritic pigeons that in both the rice and wheat grain, the antineuritic vitamin is concentrated mainly in the germ or embryo; it is also present to a less degree in the bran (pericarp and aleurone layer), probably in the aleurone layer. In case of maize grain, the embryo also possesses marked antineuritic properties. Here the scutellum can be separated from the "plantlet" and separately investigated. Both these constituents of the embryo were found to contain antineuritic vitamin. These conclusions are by no means new in all their details; but what these investigators found cannot be too strongly emphasized, namely, that the more important location of the antiberiberi vitamin is in the embryo or germ and not the pericarp of the grain.

Ordinary white flour consists of the wheat endosperm left after removal of the aleurone layer in the milling process. Such flour is deficient in the antineuritic vitamin, and Chick and Hume remind us that the endosperm, if used as an exclusive diet, will induce polyneuritis in pigeons (or beriberi in man) in a manner identical with polished rice. Several years ago Little[2] reported in THE JOURNAL that in Newfoundland and Labrador, where in midwinter and spring many persons are obliged to subsist largely on bread, beriberi frequently occurs. At the present time the bread is made from fine wheat flour; in the memory of the older inhabitants, when the bread was made from "brown" flour, the disease was unknown. In 1910 the following interesting event took place: A ship laden with whole-wheat flour ran ashore, and a considerable proportion of her cargo was removed in order to lighten her, and later was consumed by the adjacent population. There was no case of beriberi in that region for a year following this occurrence. Taken in connection with the outbreaks of beriberi that have been reported in connection with British troops living on restricted rations, these comparatively

1. Chick, Harriette, and Hume, E. Margaret: The Distribution in Wheat, Rice, and Maize Grains of the Substance, the Deficiency of Which in a Diet causes Polyneuritis in Birds and Beri-Beri in Man, Proc. Roy. Soc., B, 1917, ꝺꝺ, 44.

2. Little, J. M.: Beriberi Caused by Fine White Flour, THE JOURNAL A. M. A., June 29, 1912, p. 2029.

recent experiences indicate that special precautions are called for when the diet is liable to consist largely of foods deficient in vitamins.

The British investigators have reached the conclusion, therefore, that for the prevention of beriberi it is in the highest degree desirable that the germ (embryo) and the bran of wheat should not be excluded from the flour destined for manufacture of bread and biscuit for troops on active service. This is the more necessary when the troops are separated from fresh food supplies, and the rest of the ration consists largely of tinned foods.

We are aware that technical difficulties arise in the packing and transporting of whole-meal or germ-containing flour. It seems likely that expert advice can overcome this; at any rate the problem involved deserves most careful study from those competent in this field. Baked products like crackers or biscuits can doubtless be shipped without encountering the difficulties presented by the flour itself. It must not be assumed from what has been stated that wheat germ is the only available source of antineuritic vitamin, or that the dangers just emphasized apply with equal force to all individuals in the population. Where liberal variety in diet is possible, the chance of deficiency is greatly reduced; but there are plenty of instances in which extremes of climate, temporary separation from a diversity of fresh food supplies, or the exigencies of active service on long campaigns or during siege have brought untoward consequences. We must learn to avert these as far as possible. As most cases of human beriberi have in the past been attributable to a defect in the character of the cereal employed in the ration, and as the germ or embryo of the grain is the principal source of the antineuritic vitamin, the suggestion of an alteration in the kind of flour supplied where deficiencies are most likely to arise seems well worthy of serious consideration.

Chick and Hume[3] have recorded several impressive instances which further illustrate that deficiencies can occur as the result of milling innovations. They state that beriberi was rare on Norwegian ships before 1894, after which date it became much more frequent. This frequency coincided with an alteration of diet which was made compulsory in that year in response to a popular demand for an "amelioration" of the conditions of life in the Norwegian mercantile marine. Previously the sailors on long voyages used biscuit made from rye flour; subsequently the masters of ships were obliged to supply bread baked from white wheaten flour, or a mixture of wheat and rye flour. It is an interesting corollary to note that in the milling of rye flour there is no separation of the germ. Again, it is pointed out as very significant in connection with the siege of Kut-al-Amara that beriberi should have broken out among the British troops while on their normal ration of white wheaten flour, and should have cleared up when they were obliged to share in the more coarsely milled (and doubtless germ-containing) grain of their Indian fellow-soldiers.

3. Chick, Harriette, and Hume, E. Margaret: The Distribution Among Foodstuffs (Especially Those Suitable for the Rationing of Armies) of the Substances Required for the Prevention of (A) Beriberi and (B) Scurvy, Tr. Soc. Trop. Med. and Hyg., 1917, **10**, 141.

THE RISING COST OF MILK

Until recently, the problems of the milk supply were considered almost exclusively from the sanitary side. That the milk of different breeds of cattle may have unlike chemical composition, particularly with respect to the content of fat, has of course not entirely failed of recognition; but, after all, discussion has centered preeminently about those questions that relate to the presence and entrance of bacteria into the milk and to the methods of maintaining a high standard of milk hygiene. Confronted suddenly with enormously increased costs in many of the common foods, among which milk belongs, consumers are asking whether they are justified in paying the price now demanded. The public is assured by our experts in nutrition that it would be a misfortune to have the supply and the purchase of milk decreased in this country, where its use is well within what are considered optimal limits. THE JOURNAL has repeatedly subscribed to the same sentiment. Admitting the general proposition of the prime necessity for milk, the consumer properly asks whether the existing conditions in the milk market are defensible.

In the past, we have attempted occasional critical discussions of various factors concerned in the production of milk. Recently the Agricultural Experiment Station of the University of Wisconsin, at Madison, has collated the newest facts regarding the partition of the expenditures ending in the sale of milk to the consumer.[1] It appears that, under Wisconsin conditions at least, the farmer is getting something over half of the money that the consumer pays for milk. The farmer's share might be increased if he could avoid producing a surplus at certain seasons of the year, or if he could himself take care of this surplus without throwing it on the milk market. Transportation costs about 8 per cent., handling at the milk plants of the distributors involves an outlay of a further 18 per cent. for bottling, pasteurizing and other items of preparation, and the delivery system adds the final quarter of the total expenditure.

In considering the possibility of economy, the expense of distribution appears to be the only item that offers any prospect of reduction under present conditions. The Wisconsin report points out that with our present competitive system of distributing milk, there is an unnecessarily large amount of

1. Hibbard, B. H., and Erdmann, H. E.: Marketing Wisconsin Milk, Bull. 285, Wisconsin Agric. Expt. Station, December, 1917.

duplication. Not only are there often more men engaged in the business of delivering milk than are necessary, but each has more machinery and general equipment than are necessary in handling his business; that is, each could usually handle much more business without a great increase in his fixed investment. In almost any town one may frequently see three or four delivery wagons on the same street, at the same time, literally traveling in each other's tracks. Various remedies have been proposed, such as cooperative distribution, municipal monopoly, a private monopoly publicly controlled to place service above profits and allow a normal return on a reasonable investment of capital, or a method of marketing through stores that already have a delivery system for other commodities. Such economies would reduce the total cost of milk a little more than one eighth. If we may take Wisconsin as a typical state, it appears that the per capita consumption is less than 0.6 pint per day. In consideration of all the circumstances, possibly we should be content to accept current prices as reasonable under existing conditions. While milk prices have increased rapidly of late, they have not risen so rapidly or so much as have prices of other foods.

Grades of milk now found on the market are not such as are most helpful to the consumer in aiding him to select the class of milk he wishes to buy. Were such grades established, milk would sell more nearly on a quality basis. Since it is difficult for most consumers to recognize quality in milk, unrestricted competition in its production and distribution tends to lower quality. If we cannot lower the price of milk, we can at any rate try to get a good return for the expenditure.

PULMONARY VENTILATION IN TRAUMA AND SHOCK

The contributors to THE JOURNAL have lately given evidence of the intense interest which the misfortunes of war have awakened anew in the ever present subject of shock. In the series of articles on the nature and treatment of wound shock and allied conditions,[1] by observers who had exceptional opportunities to observe the patients in the early stages of injury, the occurrence of what has sometimes been termed acidosis has been reported as a characteristic sequence to trauma. Emphasis has been placed on the lowering of the alkali reserve of the blood, on the fact that under anesthesia and operation a further lowering occurs, and on the corollary that the intravenous infusion of alkaline solutions seems to provoke a prompt, beneficial response.

Recently attention was directed to Yandell Henderson's experiments showing that the factor of the alkali reserve of the blood is undoubtedly affected by altered breathing.[2] In researches with Haggard,[3] he has demonstrated anew that excessive pulmonary ventilation by means of artificial respiration induces not only a lowering of the carbon dioxid content, but also of the carbon dioxid capacity of the blood. Arterial pressure also falls, and death from circulatory failure may follow. If the artificial respiration, instead of being made with fresh air, is carried on by continual reinjection mainly of expired air, so that the carbon dioxid content of the blood is not reduced, the carbon dioxid capacity and arterial pressure do not fall and the other ill effects also fail to appear. Now the pain that the wounded feel is commonly attended by excessive breathing. The question, therefore, naturally arises whether abnormally extensive pulmonary ventilation induced by pain, pain hyperpnea, can account for the diminished alkali reserve reported for the shocked victims of the battlefield, or whether the trauma per se plays a part. Henderson and Haggard,[4] working at the Yale Medical School physiologic laboratories, have reached the conclusion that apart from overventilation of the lungs, trauma does not cause a lowering of the carbon dioxid capacity (alkali reserve) of the blood, even when by general traumatization and cooling of the abdominal viscera and consequent stagnation of the blood in the injured parts, failure of the circulation and death are induced. If, on the other hand, no measures are taken to prevent excessive pulmonary ventilation, the overbreathing induced by localized manipulation of the stomach, while the rest of the viscera are protected, causes lowering of the carbon dioxid content and carbon dioxid capacity of the blood and also of arterial pressure. If the lowering of the carbon dioxid capacity is pushed beyond the apparently critical level, between 33 and 36 per cent. by volume, the disturbance of the vital equilibrium results fatally. The same duration and degree of localized manipulation administered while the subject is inhaling 6 or 7 per cent. of carbon dioxid does not cause any marked lowering of the carbon dioxid capacity, arterial pressure, or general vitality. Below the critical level for the carbon dioxid capacity, treatment by the administration of from 7 to 10 per cent. of carbon dioxid in the air breathed does not cause restoration of carbon dioxid capacity or arterial pressure.

It is not unlikely, according to Henderson and Haggard, that when a very low level of carbon dioxid capacity is reached, a true acidosis due to tissue asphyxia and production of abnormal acid metabolic products may supervene. But if the maintenance of

1. THE JOURNAL A. M. A., Feb. 23 and March 2, 1918.

2. Respiration and the Carbon Dioxid Capacity of the Blood, editorial, THE JOURNAL A. M. A., March 30, 1918, p. 924.

3. Henderson, Yandell, and Haggard, H. W.: Respiratory Regulation of the Carbon Dioxid Capacity of the Blood, III, The Effects of Excessive Pulmonary Ventilation, Jour. Biol. Chem., 1918, **33**, 355.

4. Henderson, Yandell, and Haggard, H. W.: Respiratory Regulation of the Carbon Dioxid Capacity of the Blood, IV, The Sequence of Trauma, Excessive Breathing, Reduced Carbon Dioxid Capacity, and Shock, Jour. Biol. Chem., 1918, **33**, 365.

a proper alkali reserve or carbon dioxid capacity of the blood is dependent on a suitable not too low content of carbon dioxid in the blood, the long suggested plan of administering carbon dioxid in certain types of shock, as well as in the dangers of ether anesthesia, cannot be passed by without thoughtful consideration. There are indications already available that the proposed procedure will be given an opportunity to demonstrate its possibilities in the present crisis.

SUGAR IN WAR TIME

During recent months, many physicians have been asked regarding the possible effects of the various newly imposed or proposed dietary restrictions or innovations on the health of the individual. Despite the widespread acquiesence of our population in the dictates of the national and state food administrations, there is not unnaturally a frequent final appeal to the members of the medical profession for approval of such changes as have been proposed in the interest of the movement to help win the war. Among other plans for conservation, a reduction in the use of sugar has been urgently requested and, indeed, made inevitable at times when local shortage has curtailed the available supply so that the customary quota is not forthcoming. A summary compiled for the War Emergency Food Survey Section of the Bureau of Markets[1] furnishes facts that will enable us to draw conclusions more definite than those permitted by vague generalizations from intangible sources. The most pertinent information is that respecting the actual use of sugar in the United States in recent years. The amount consumed in 1917 was approximately 9,100,000,000 pounds, or 88.3 pounds per capita. In 1916 it amounted to 8,300,000,000, or 84.7 pounds per capita. It is thus apparent that if these statistics are correct there has been some increase in the consumption of sugar.

Eighty-eight pounds of sugar per capita used each year represent about 110 gm. (nearly 4 ounces) per day for every man, woman and child in this country. Expressed in terms of food fuel units this is equivalent to 440 calories, a not inconsiderable portion of the daily energy needs of an adult man. The sugar of the daily diet consumed in the measure indicated by the government statistics would furnish one seventh of the food fuel where 3,000 calories are required, and even a larger proportion where the daily energy requirement is put on a lower basis. Four ounces of sugar, as the accusation now stands, is the calorific equivalent of two thirds of a quart of good milk or of eight slices of bread approximating one third of a pound.

When it is recalled that this great per capita consumption of sugar is largely a phenomenon of recent years and the result of the development of an industry whereby the price of the product has been lowered, the necessity for the inclusion of this carbohydrate up to one seventh or even one fifth of the daily energy requirement in the diet will obviously be questioned. Sugar is primarily used for its flavor rather than its fuel value. One American student of nutrition has even gone so far as to question the physiologic wisdom of the modern increased consumption of sugar. Thus Sherman[2] writes:

> The cheapening of a staple article of food, which is almost universally popular and which, like the refined sugar of commerce, is of uniform and well-known composition and practically free from danger of adulteration or harmful deterioration, would be a source of great satisfaction but for the fact that refined sugar constitutes an extreme case of a one-sided food, its sole nutritive function being to serve as fuel so that, as the energy requirement of the body is met to a larger and larger extent by the consumption of refined sugar there is a constantly increasing danger of unbalancing the diet and making it deficient in some of the substances which are needed for the building and repair of body tissue and for the regulation of physiological processes.

From a practical standpoint it is pointed out in a government bulletin[3] that in the American cuisine sugar is used with too many kinds of food, with a consequent loss of variety and piquancy of flavor in the different dishes. The nutty flavor of grains and the natural taste of mild fruits are very often concealed by the addition of large quantities of sugar.

Sugar is well utilized in the human organism; from the standpoint of cost its food value is very high, and its popularity need not be debated. But there is no consideration of nutrition that seriously demands so large an inclusion of sugar in the diet or forbids considerable reduction in its use, especially when the best interests of the civilized world demand it.

Zoology and the War.—It is often said that this war is a scientific war and it is true both in its destructive aspects and in its safeguarding and protecting features. It is equally true that when all is said as to guns and explosives and poisonous gases, the last word lies with the man power of the belligerents. And it is here that zoology's great service is rendered. It is purely biological studies that have made possible the assembling of great numbers of men without disease slaying far more than fall before the guns of the enemy. The surgery which restores 90 per cent. of the wounded would be impossible without the knowledge reached by decades of parasitologic research. Our knowledge of sanitation and the prevention of infectious disease has doubtless saved many more combatants and noncombatants than have been slain in all the battles. It is not only Serbia which has been saved from typhus. Without our knowledge of the transmission of this disease, and the preventive measures thus made possible, all the belligerent nations would have been decimated by this scourge. Typhoid fever, cholera, bubonic plague, smallpox, would each have taken similar toll. For every dozen lives lost from battle, hundreds would have been destroyed by infectious diseases which we are now able to hold in check.—Prof. Maynard M. Metcalf in *Scientific Monthly.*

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1. Sugar Supply of the United States: Its Extent and Distribution on Aug. 31, 1917, Circular 96, U. S. Dept. Agriculture, Office of the Secretary, Washington, Jan. 31, 1918.

2. Sherman, H. C.: Food Products, New York, 1914, p. 440.

3. Abel, Mary Hinman: Sugar as Food, Farmers' Bull. 535, U. S. Dept. Agriculture.

Current Comment

THE YIELD OF FOOD PER ACRE IN THE UNITED STATES

To many well educated persons it has become comparatively easy nowadays to think of food in terms of its energy value, and to express nutritive needs by calories. We owe this fact largely to the rapid popularizing of the science of nutrition, a movement largely fostered in this country by the efforts of the late Professor Atwater and his various associates, and probably not equally by any other nation in the world. Any one who knows the needs of the individual can estimate the requirement of the nation, so far as the problem is one of mathematics. Today we are face to face with precisely such problems. Food has become associated with patriotism, and there is nothing to be ashamed of in linking these words together. In their story of the food problem, Kellogg and Taylor have remarked:

> It is a time of rare and glorious opportunity; a time in which prosaic business and industry may be lifted up to the high plane of national service. And it is being so conceived in many quarters. The editor of a miller's journal puts it well for his miller and baker readers when he says: "He who grinds a barrel of flour or makes a loaf of bread to the glory and good of the nation, forgetful of self, performs his duty in a spirit of devotion equal in its way to that of him who goes forth to actual battle."

In the face of a world shortage of food there is something more than scientific inquisitiveness, therefore, in attempting to ascertain the comparative productiveness of our land in terms not usually employed. Many of our readers are conversant with the acreage crop of many foods. They think of a yield of 35 bushels of corn or oats per acre in contrast with 20 bushels of wheat on the one hand and 100 bushels of potatoes on the other. But the United States Department of Agriculture[1] has recently attempted to furnish an acre-for-acre comparison of different crops and animal products in terms of nutrients for man. At the head of the list of crops commonly grown in this country stands corn, a 35-bushel crop of this cereal producing 150 pounds of protein and more than 3,000,000 units of energy. This fact in itself speaks for the importance of encouraging the use of corn by improved milling and culinary procedures. Next in order stand sweet potatoes and Irish potatoes, with calories-per-acre values of 2,000,000 or more. Corn is ahead of all other crops except navy beans and soy beans in tissue-building material. In the latter element soy beans far outclass all other crops, showing nearly twice as much protein per acre as navy beans, which rank second in this regard. The statistics show that the dairy cow is the most efficient of farm animals in the production of human food (milk), and that the hog is the most efficient in the conversion of grain into meat, producing five times as much per acre of crops as does any other animal. The calories-yield per acre, when suitable crops are converted into pork, is estimated at nearly 700,000 calories, in contrast with 130,000 calories similarly furnished by beef. Where milk is produced, however, the record of the hog is eclipsed.

1. Cooper, M. O., and Spillman, W. J.: Human Food from an Acre of Staple Farm Products, Farmers' Bull. 877, U. S. Dept. Agric., October, 1917.

THE MEASURE OF ACIDOSIS

A comparatively simple and seemingly practical method of ascertaining the existence of a condition of acidosis in the organism, and the degree to which it has developed, consists in what has been fancifully termed "titrating the body." This amounts to a determination of the quantity of an alkali—sodium bicarbonate—that is required to change the reaction of the urine so that it becomes alkaline. In normal persons this result takes place, as has repeatedly been demonstrated, when from 5 to 10 gm. of the alkali are administered. It suggests that the kidneys secrete alkaline urine only when the level of the bicarbonate concentration of the blood reaches certain proportions. Palmer and Van Slyke[1] have remarked, in the course of a study of acidosis at the Hospital of the Rockefeller Institute, that to judge from the small amounts of bicarbonate required to turn the urine of normal men alkaline, this level would be appreciably, but not greatly, above the average normal. They have found, in accord with this, that under conditions of health there is a fairly definite level of the plasma bicarbonate at which the urine changes its reaction from one more acid than blood to one more alkaline. In normal men this occurred when the plasma bicarbonate (as CO_2) reached 71 ± 5 per cent. by volume. In the case of persons abnormal in health, there may be a different status of kidney permeability. In most of the pathologic cases studied at the Rockefeller Institute hospital, the urine did not become more alkaline than the blood until a higher plasma bicarbonate had been reached than in normal persons. It is evident, therefore, that the quantity of bicarbonate required in some pathologic conditions to produce an alkaline urine may give a false indication of the degree of acidosis or even the presence of such a condition; for, in some cases that belong to the group of abnormal persons, the plasma bicarbonate may rise appreciably higher than is normally the case before an alkaline urine begins to be excreted. Palmer and Van Slyke explain that herein may lie the true explanation of the objection that certain clinicians have registered against the liberal use of alkali therapy. If bicarbonate is given to patients in continued doses until the urine becomes alkaline, there is danger of administering unnecessary and perhaps even injurious amounts. Alkalosis, in contrast with acidosis, has lately been associated with tetany. There accordingly arises the necessity of carefully controlling the therapeutic use of sodium bicarbonate. This may best be done by determination of the plasma bicarbonate. It is improbable that more severe acidosis often exists than is indicated by the bicarbonate retention test in "titrating the body"; but

1. Palmer, W. W., and Van Slyke, D. C.: Studies of Acidosis, IX. Relationship Between Alkali Retention and Alkali Reserve in Normal and Pathological Individuals, Jour. Biol. Chem., 1917, **32**, 499.

Palmer and Van Slyke now contend that it may be indefinitely less severe. As they express it, the alkali retention test, conducted by feeding bicarbonate until the urine shows an alkalinity approximating that of normal blood, indicates either the approximately correct alkali reserve, or less. If no acidosis is indicated by the test, its absence can therefore apparently be accepted; but if acidosis is indicated, the finding must be confirmed by blood analysis before being accepted.

SOME NUISANCES OF THE BATTLE FRONT

The dead bodies of animals or men exposed to the elements of nature without further attention become the occasion for much concern if they are in the neighborhood of human habitations. They afford a locus of dangers and nuisances arising in particular from putrefaction and flies. In war, the great toll of dead men and horses left to decay without special burial or treatment presents a problem in sanitation that army officers are often compelled to face in a large way, whereas it is not infrequently present in the ordinary routine of every day peace-time experiences, though in less conspicuous guise. The stench of the battlefield and the swarms of insects that help in the work of final destruction of animal tissue have often been described. How to combat them effectively must doubtless be determined by the exigencies of the situation, which are quite different at the fighting front from what they are likely to be in an ordinary environment.

Foreman and Graham-Smith,[1] who have attempted to find easy and practicable means for mitigating the various nuisances arising from exposed animal matter, have lately conducted numerous experiments under field conditions. They have arrived at the conclusion that in the superficial treatment of intact or opened carcasses and other putrescible materials, reagents should be used which adhere to the greasy surfaces, form films, render the skin waterproof, and kill the bacteria in it, thus checking putrefaction by preventing the access of water and putrefactive organisms to the tissues. Further, the reagent should be a deodorant, capable of repelling flies which lay their eggs on animal matter, killing the eggs or larvae, resisting the action of water, and remaining operative in all respects for a long time. The British investigators state that watery emulsions of disinfectants are necessarily deficient in most of these properties. Only undiluted oily reagents possess them.

In the experience of Foreman and Graham-Smith, coal-tar creosote oil meets the needs just outlined most satisfactorily. Many other disinfectants have, of course, been tested here and abroad. The method reported is said to have advantage for a variety of purposes beside the treatment of dead bodies. Flies have been kept from entering such places as dugouts by means of sacks treated with creosote oil mixtures and hung over the entrance. Latrines have been kept free from flies by being sprayed with it. The enumeration of these few circumstances not only serves to indicate a practical management of serious difficulties of daily life, but also helps to remind us how greatly these become aggravated and magnified in the circumstances of war time. Yet they must be met.

1. Foreman, F. W., and Graham-Smith, G. S.: Investigations on the Prevention of Nuisances Arising from Flies and Putrefaction, Jour. Hyg., 1917, **16**, 109.

THE BEHAVIOR OF CERTAIN VITAMINS

A recent study of one of the dietary essentials or vitamins which McCollum has designated temporarily as "water-soluble B" brings us appreciably nearer to a more precise understanding of these unique substances. Ever since the surprising descriptions of the almost miraculous relief of animals suffering from experimental polyneuritis by the administration of extremely small quantities of substances derived from rice polishings and other sources, the curiosity of both the physiologist and the clinician has been aroused at the possible chemical nature and mode of action of these so-called vitamins. Enough data furnished by competent workers now exist to indicate how essential these as yet unidentified components of the diet are for the physiologic well-being of the individual. Without certain additions, otherwise adequate mixtures of the familiar nutrients, proteins, fats, carbohydrates and inorganic salts, will not suffice to induce satisfactory nutrition. These additions, or vitamins, are widely distributed in the most diverse natural products. The absence of the dietary essentials results in nutritive decline, and a variety of pathologic consequences which are just beginning to be recognized as indications of dietary deficiences. McCollum and Simmonds[1] have found that the water-soluble B, the vitamin that averts symptoms of polyneuritis when the diet is otherwise adequate, can be extracted from diverse plant and animal sources by the use of alcohol. This procedure liberates the vitamin so that it becomes soluble in organic solvents like benzene, with which it cannot be extracted from its original sources. Thus it has been found that the water-soluble B is not extracted directly from beans, wheat germ, or pig kidney by ether, benzene or acetone, but is readily extracted in great part by alcohol. After being removed by alcohol, it is shown to be soluble thereupon in benzene, but very slightly soluble in acetone. The probability, McCollum and Simmonds state, that there should be two or more physiologically indispensable substances in what they term water-soluble B, both or all of which should show the same solubility relations with three solvents, is relatively small and lends support to their view that the substance which protects animals against polyneuritis is the only essential complex in the extracts described. In other words, the data support the view that there are no specific substances present in these extracts which protect against such diseases as scurvy, rickets, pellagra and sprue, and tend to confirm their contention that the latter are not due to specific starvation, as is the case with beriberi and xerophthalmia. The tentative exclusion of the hypothesis of a great multiplicity of vitamins marks an advance in the study of these diseases.

1. McCollum, E. V., and Simmonds, Nina: A Study of the Dietary Essential, Water-Soluble B, in Relation to its Solubility and Stability Towards Reagents, Jour. Biol. Chem., 1918, **33**, 55.

Medical Mobilization and the War

Navy Needs More Medical Reserve Officers

According to the *Army and Navy Journal*, examinations are to be held at each of the larger stations of the Navy to increase the strength of the Medical Reserve Corps of the Navy. The department needs 500 additional medical reserve officers, and it is stated that the men are needed for active duty as soon as they can be obtained.

American Prisoners Interned in Germany

Among the list of American prisoners who have been interned in Germany, as announced in the *Official Bulletin*, are the names of the following doctors: Dr. John Brown, taken from the Esmeraldas on March 10, 1917, interned at Camp Beeskow, home address, Hampton, Va.; Dr. John Davies, taken from the *Georgic* in the North Atlantic, Dec. 10, 1916, interned at Camp Karlsruhe, home address, Columbus, Miss.; and Dr. Herbert Snyder, taken from the *Voltaire*, Dec. 2, 1916, interned at Camp Karlsruhe, home address, Norfolk, Va. The Association's biographic records do not contain these names and addresses.

New Regulations Regarding the Mailing of Parcels to Members of the Expeditionary Forces

Under date of March 29, the Postmaster-General issued an order stating that on and after April 1, 1918, parcels for members and individuals connected with the American Expeditionary Forces in Europe shall not be accepted for mailing or dispatching unless they contain such articles only as are being sent at the written request of the addressee, approved by his regimental or higher commander or an executive officer of the organization with which he is connected. In enforcing this order, postmasters are instructed to secure the assurance of the sender in each case that all the articles contained in the parcels are sent at the addressee's approved written request, that such request is enclosed in the parcel, and to require the sender to place on the wrapper of the parcel under his name and address the following endorsement: "This parcel contains only articles sent at the approved request of addressee which is enclosed." The postoffice order is issued at the request of the War Department.

Personnel of the Medical Department

For the week ending March 29, the personnel of the Medical Department of the Army included:

Medical Corps: 827, including 1 major-general, 66 colonels, 102 lieutenant-colonels, 176 majors, 3 captains and 479 lieutenants.

Medical Reserve Corps: 18,206, including 1,107 majors, 4,246 captains and 12,853 lieutenants. On active duty: 15,174, including 986 majors, 3,727 captains and 10,461 lieutenants.

Medical Corps, National Guard: 1,229, including 15 lieutenant-colonels, 253 majors, 150 captains and 811 lieutenants.

Medical Corps, National Army: 93, including 3 brigadier-generals, 11 colonels, 72 lieutenant-colonels and 7 majors.

Dental Corps, 209; Dental Reserve Corps, 5,153, of whom 1,343 are on active duty; Dental Corps, N. G., 259; Veterinary Corps, 24; Veterinary Reserve Corps, 1,426, of whom 823 are on active duty; Veterinary Corps, N. G., 57; Veterinary Corps, N. A., 296; Sanitary Corps, 1,017, and Ambulance Service, 143, constitute the remainder of the commissioned personnel.

The DISCHARGES in all branches of the service to date are:

	Number			
Causes	MRC	MC,NG	DC,NG	San. C.
Physical disability	476	35	6	4
Inaptitude	190	10	0	1
Other branches of the service	383	19	2	42
Domestic troubles	30	0	0	1
Needed by the community	35	1	0	0
Deaths	43	3	0	0
Dismissals	2	2	0	0
Resignations	142	43	5	8
	1,301	113	13	56

Distinguished Service Awards for Medical Officers

It is reported that distinguished service crosses have been awarded to two American medical officers for exceptional performances. One is given as "Lieut. H. R. Davies, M. R. C.," of Charleston, S. C., who is serving with the British Army. It is stated that on January 8 he entered a dugout under conspicuous fire, remained there attending the occupants after it had been blown in, performed an amputation and saved the life of a British soldier, and that previous to this time he had taken a prisoner in a listening post in the Toul sector. It is stated that this is the first medal conferred on an American serving with the British forces. The biographic department of the Association does not record any physician of this name and address.

It is also reported that a distinguished service cross has been awarded to Lieut. J. P. Rosenwald, M. C., N. G., U. S. Army, for duty performed during the fighting on the Luneville sector. Lieutenant Rosenwald, while attached to an artillery regiment, twice entered a battery position under heavy fire in order properly to care for the wounded. Lieut. John Paul Rosenwald, Minneapolis, is 34 years old. He graduated from the John A. Creighton Medical School in Omaha in 1910 and is a Fellow of the American Medical Association.

New Legislation

During the week ending March 30 several bills were introduced into the Congress, which concern the Medical Department.

BILLS PASSED

Army Nurse Corps.—The Senate passed Senate Bill 3693 prescribing the personnel of the Army Nurse Corps, the qualifications for appointment, method of appointment, pay, allowances and leave, and the conditions under which nurses may be retired.

Commutation of Quarters.—The Senate also passed Senate Bill 3863 providing for commutation of quarters during the present emergency for every commissioned officer of the Army of the United States on duty in the field or on active duty outside of the United States who maintains a place of abode for a wife, child or dependent parent.

BILLS INTRODUCED

Rank and Pay of the Medical Department.—Senate Bill 4168 was introduced into the Senate by Senator J. K. Shields of Tennessee, which provides:

"That the Medical Department of the Army shall consist of one surgeon general with the rank of major general, who shall be chief of said department; six assistant surgeons general, the assistant surgeons general to be equally distributed in the grades of major general and brigadier general; the Medical Corps; the Medical Reserve Corps; the Dental Corps; the Dental Reserve Corps; the Veterinary Corps; the Veterinary Reserve Corps, the commissioned officers of which shall be citizens of the U. S.; the Nurse Corps and contract surgeons authorized by law; the enlisted force of the Medical Department of the Army; and the Medical Enlisted Reserve Corps, as now provided by law. Commissioned officers of Medical Corps below rank of brigadier general shall be proportionately distributed in the several grades as now provided by law. The commissioned officers of Medical Reserve Corps shall be distributed in the several grades as in Medical Corps of Army. In time of war the President shall have authority to appoint in grade of consultant, to be equally distributed in grades of major general and brigadier general, such number of officers of Medical Reserve Corps as interests of service may demand: Provided, That reserve officers so appointed shall at no time exceed twenty in number. Nothing in this Act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein."

To Furnish Uniforms.—H. R. 10925 was introduced into the House of Representatives by R. L. Doughton of North Carolina,

"To furnish all uniforms, accouterments and equipments required for any officer of the military forces of the United States at cost prices."

H. R. 10976 was also introduced by Mr. Doughton:

"Requiring the Government to furnish uniforms to officers of the Army or Navy, and for other purposes."

Filling Vacancies in Medical Department.—H. R. 10928 was introduced by L. C. Dyer of Missouri, which provides:

"That hereafter the President shall be authorized to fill any vacancies that may occur in the commissioned personnel of the Medical Department of the Army by ordering such officers of the medical section, officers' Reserve Corps and Dental Reserve Corps, who shall have been in active service one year or more, to the Army Medical School or Army Dental School under such rules and regulations as shall be prescribed by the Secretary of War, and such officers so ordered, upon completion and satisfactory examination, shall be commissioned first lieutenants in the Medical Department, U. S. Army, and be entitled to all the pay, promotion and allowances of officers of like rank in the Army of the U. S., except that the rate of retirement shall be one-thirtieth of the present retirement pay as now prescribed by law for each year's active service as an enlisted man, contract surgeon, or as a commissioned

officer in the Army of the U. S., medical section, Officers' Reserve Corps, Medical Reserve Corps, Dental Reserve Corps, or Organized Militia in Federal Service: Provided, That at the age now prescribed by law for retirement every officer to be so commissioned shall have had not less than fifteen years' active service in any of the branches enumerated in this Act: Provided further, That preference for appointment shall be given to those who have had the longest aggregate active service in the branches enumerated in this Act."

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

From Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending March 23, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (DISEASE ONLY):
   - All troops 1,464.2
   - National Guard Camps 893.6
   - National Army Camps ..... 1870.
   - Regular Army 1,390.2
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:
   - All Troops 48.7
   - National Guard Camps 37.8
   - National Army Camps ..... 57.
   - Regular Army ..... 43.
3. ANNUAL DEATH RATE PER 1,000 (DISEASE ONLY):
   - All Troops 8.9
   - National Guard Camps 2.8
   - National Army Camps 13.1
   - Regular Army 9.3

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING MARCH 22, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
Wadsworth	9	..	..	12	1	..	6	2	391.5	21.7
Hancock	7	..	..	15	6	1	..	2	356.8	24.1
McClellan	5	..	..	15	5	..	1	0	732.5	28.9
Sevier	3	..	1	18	..	..	..	1	1,056.5	45.5
Wheeler	1	..	6	98	..	..	..	1	964.6	37.6
Logan	7	..	..	54	4	..	..	0	1,026.7	39.2
Cody	9	..	..	7	1	..	..	2	483.6	22.6
Doniphan	..	..	..	16	1	2	1	1	1,484.2	44.3
Bowie	21	..	..	26	..	..	..	4	1,359.2	57.0
Sheridan	1	..	..	21	..	..	2	0	433.9	24.6
Shelby	4	..	..	13	2	1	..	1	935.3	44.4
Beauregard	5	..	30	17	1	..	..	3	1,234.7	53.9
Kearny	1	..	..	10	5	..	11	3	1,574.0	47.2
Devens	11	..	..	12	8	..	1	2	1,292.6	48.4
Upton	35	..	..	48	7	3	1	12	1,118.2	30.7
Dix	20	1	1	19	5	1	5	4	1,851.3	44.0
Meade	19	..	..	7	6	..	5	3	911.8	34.9
Lee	11	..	..	220	..	..	8	10	1,477.6	62.3
Jackson	15	..	2	24	3	10	..	5	1,547.0	53.2
Gordon	7	..	2	32	12	..	..	0	1,488.6	44.5
Sherman	23	..	..	41	13	..	20	13	1,886.1	58.9
Taylor	12	..	..	92	122	1	..	9	2,232.0	71.3
Custer	..	..	..	13	2	..	7	5	1,454.2	41.3
Grant	9	..	..	17	14	1	10	4	753.1	38.3
Pike	19	2	3	185	18	..	6	10	2,911.6	75.2
Dodge	33	..	..	37	110	..	22	11	3,077.6	79.5
Funston	26	..	..	17	8	4	1	14	3,034.9	86.6
Travis	26	..	..	80	53	..	..	7	2,781.6	71.9
Lewis	8	..	..	27	40	..	22	3	1,600.7	63.4
Northeastern Dept.	..	..	..	16	5	..	..	0	1,128.3	35.1
Eastern Dept.	14	..	..	40	15	1	1	6	1,022.2	39.4
Southeastern Dept.	21	..	1	41	11	2	2	4	880.1	40.9
Central Dept.	17	..	..	29	36	..	14	9	1,507.3	42.4
Southern Dept.	10	..	..	94	23	..	6	5	1,176.8	43.3
Western Dept.	3	..	1	24	7	2	11	3	1,054.3	36.8
Aviation, S.C.	59	..	..	138	119	7	48	22	1,426.0	48.9
Camp Greene	3	..	..	48	27	1	6	2	800.5	27.8
Camp Fremont	..	..	..	42	12	..	1	0	1,423.1	53.3
El Paso	1	..	..	7	4	..	1	0	1,127.1	7.7
Columbus Bks.	..	..	..	21	1	2	0	3	2,046.8	50.7
Jefferson Bks.	12	..	..	67	20	..	3	4	2,057.0	59.3
Fort Logan	4	..	..	2	2	..	2	0	2,714.1	98.1
Fort McDowell	17	..	2	13	11	..	..	0	2,902.9	55.2
Fort Sheridan	17	..	..	11	1	..	..	4	2,548.9	51.8
Fort Thomas	1	..	..	6	..	..	..	0	1,289.6	58.5
D. B. Alcatraz	..	..	..	....	....	..	..	0	648.0	6.2
D. B. Fort Leavenworth	..	..	..	....	....	..	..	0	5,059.8	133.0
A. A. Humphreys	..	..	..	4	..	..	..	0	982.9	11.2
J. F. Johnston	1	..	1	15	..	1	..	1	979.2	33.5
Camp Merritt	16	..	2	49	5	..	6	11	1,254.9	63.9
Camp Stuart	12	..	..	29	6	..	1	7	1,782.3	47.4
West Point, N. Y.	..	..	..	....	2	..	..	0	2,614.5	19.6
Edgewood	1	..	..	..	..	..	..	0	2,565.8	39.4
General Hospitals	1	..	1	42	1	..	1	2		
Nat'l Guard Depts.	..	..	1	10	17	..	1	1		
Nat'l Army Depts.	16	..	1	58	53	1	29	5		
Total (all troops)	563	3	67	1,883	825	38	305	221	1,464.2	48.7

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Mar. 22, 1918	Regulars in U. S., Week Ending Mar. 22, 1918	National Guard, All Camps, Week Ending Mar. 22, 1918	National Army, All Camps, Week Ending Mar. 22, 1918	Expeditionary Forces, Week Ending Mar. 14, 1918
Pneumonia	23.5	22.4	11.9	23.3	36.2
Dysentery	0.1	0.0	0.0	0.3	0.7
Malaria	1.9	0.8	4.5	0.9	0.0
Venereal	78.5	85.9	39.4	95.3	46.0
Paratyphoid	0.04	0.0	0.0	0.1	0.0
Typhoid	0.1	0.0	0.0	0.3	0.2
Measles	34.4	27.9	4.0	49.6	16.5
Meningitis	1.6	1.6	0.6	2.3	2.5
Scarlet fever	11.1	13.0	3.6	12.3	30.9

NEWS OF THE CANTONMENTS

Eighty-Third Division, Camp Sherman, Chillicothe, Ohio

MARCH 26, 1918.

INFECTIOUS DISEASES

Until well into January the camp was comparatively free from the infectious diseases. During January there were 2 cases of chickenpox, 627 of measles, 368 of mumps, 41 of pneumonia, 81 of scarlet fever, 5 of epidemic meningitis and 21 of diphtheria. During February there were 3 cases of chickenpox, 298 of measles, 897 of mumps, 50 of pneumonia, 142 of scarlet fever, 4 of epidemic meningitis and 14 of diphtheria. The incidence of sore throats and tonsillitis increased, and there were 583 reported cases. Up to February there were 42 deaths, and in that month 12 were added; a small list considering the duration of the camp and the number of men who have been ill in that time.

The large number of sick made it necessary to provide more quarters, as the base hospital capacity is a limited factor, and these quarters were provided by the opening of a convalescent hospital in four barracks. This hospital was placed under the management of the sanitary train, which obtained an invaluable opportunity for instruction of both officers and men.

PROMOTION

Major Henry S. Satterlee, commanding officer of the sanitary train, has been promoted to the rank of Lieutenant-Colonel in the National Army, as required by the new tables of organization.

CONFERENCES

During February, conferences were held by a representative of the division surgeon's office with the members of the advisory and local boards of the selective service in the various districts of Ohio and western Pennsylvania. The effect of such conferences should be evident in the diminished number of men rejected at camp for evident physical defects.

Under the new authorizations, it will be possible to have groups of men with similar physical defects and to assign medical officers to supervise the therapeutic instruction of the groups, prescribing the type of and duration of exercises.

TUBERCULOSIS

The special board examining for tuberculosis has found only 381 cases of pulmonary disease; of the diseases found, 2.84 per thousand were tuberculosis; 3.34 per thousand were cardiovascular defects, and all other defects amounted to 0.979 per thousand.

PERSONAL

Major E. G. Huber, M. C., commanding officer of the base hospital, has been promoted to the rank of Lieutenant-Colonel, and will visit other base hospitals for observational and educational purposes.

Lieut.-Col. Allen B. Tucker of the sanitary corps has been sent to Camp McClellan, Anniston, Ala., to take up the fight against mosquitoes.

Capt. Charles A. Haskins has been sent here in his place as assistant to the sanitary inspector, Major J. H. Burkett.

Majors Harry M. Hosmer and Alfred Friedlander have been on a visit to other base hospitals for the opportunity of learning how the medical surgical services are organized.

Several of the chiefs of services from other base hospitals have been here for a similar purpose. Such opportunities will be of the greatest value to both the visitor and the visited.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

APRIL 1, 1918.

COURT MARTIAL OF LIEUT.-COL. JOHN H. ALLEN, M. C.

Charges which grew out of the discharge of Private Otho Murray, the drafted man who had Landry's paralysis, and for which Major Board has already been tried by a court martial, caused the court martial of Lieut.-Col. John H. Allen, M. C., former division surgeon, now camp surgeon at Camp Zachary Taylor.

The two charges against Lieutenant-Colonel Allen are that he violated the ninety-sixth article of war, for the reason stated above, and that he was guilty of insubordination and disrespect to the commanding general in writing a letter to Major Arthur T. McCormack at Washington, regarding Major Board's connection with the case of Otho Murray.

The letter that was submitted as evidence was written before the trial of Major Board, and was in regard to the trial. It is charged by the prosecution that Lieutenant-Colonel Allen wrote this letter for the purpose of having the trial of Major Board thrown out of court. The prosecution also claimed in regard to the letter that the judge advocate, who was a member of the investigating committee, was ridiculed and criticized by Colonel Allen, when he referred to 2 c.c. being drawn from the spinal canal of Private Murray as compound cathartics. On the court trying Lieutenant-Colonel Allen are one brigadier-general, four colonels, and three lieutenant-colonels.

NUTRITIONAL SURVEY

The nutritional survey party which was sent to Camp Zachary Taylor five weeks ago by Surgeon-General Gorgas to investigate into food conditions here will complete its task within a week and report through Division Surgeon Col. William M. Smart to the Surgeon-General. The members of the board are physicists and chemists. They are Capt. R. G. Hoskins, Capt. Leon S. Congdon, Lieut. F. A. Cajori and Lieut. A. G. Hogan.

Some suggestions have been made for messes to balance the menu better. The members of the board decline to discuss what their report will be concerning food conditions here. They completed surveys at four other cantonments before coming to Camp Zachary Taylor.

The new division sanitary officer, Val E. Miltenberger, is receiving congratulations on his promotion. He was a first lieutenant in the Regular Army when he came here last week from Camp Dix. He jumped the grade of captain and was commissioned a major in the National Army.

Major Luther R. Poust, assistant to the camp surgeon, Lieut.-Col. John H. Allen, has returned from a leave of ten days spent in the East and resumed his official duties.

Since his return, Major Poust has been promoted to lieutenant-colonel. He was one of the first officers here, having been in charge of sanitation during the construction period. Recently he was relieved of his duties as sanitary officer and made assistant to the camp surgeon, Lieut.-Col. John H. Allen.

On recommendation of Lieut.-Col. William Smart, surgeon of the Eighty-fourth (Lincoln) Division, Capt. David C. Donan was transferred from the base hospital to the Three Hundred and Thirty-Sixth Infantry Regimental Infirmary.

BASE HOSPITAL UNITS

Major Leonard S. Hughes, who will command Base Hospital Unit No. 40, has arrived and assumed his duties. He was educated in Louisville and is a veteran of the Spanish-American War. The unit was organized at Lexington, and its enlisted personnel includes scions of some of the oldest and foremost families of the Blue Grass State.

There are now three base hospital units at the cantonment, and nearly as many commissioned officers filling each position at the hospital. These officers are receiving valuable experience and training in this manner, while the patients are benefited by the combined medical skill. When orders are received for a hospital unit to go forward, the commissioned personnel will have a thorough knowledge of the work, and its removal will not interfere with the efficiency of the force at the local hospital. Only two of the base hospital units have been completely organized, the commissioned personnel of the third having been formed "on paper." A large inflow of medical officers is expected here next week.

PRISONERS' WARD

Arrangement have been completed for a special ward at the base hospital at Camp Zachary Taylor for the care and confinement of sick prisoners. Lieut.-Col. Will Pyles, superintendent, has received official notification from the Surgeon-General that the recommendation for the prisoners' ward has been approved and authorization given for its construction.

The building will be more substantial than other wards as a precautionary measure against escape of prisoners, and the windows will be barred. It will cost approximately $5,000. The site has not been selected, but it will probably be within the hospital area along Washington Avenue (formerly Bickel Lane), between the Preston Street road and Lincoln Avenue.

The new ward will alleviate a situation that has caused considerable inconvenience and handicap to the hospital officers and attachés. Whenever a military prisoner is stricken ill and removed from a guardhouse to the hospital it becomes necessary to station a guard at his bedside night and day to thwart any attempt at escape that might be made.

The new prisoners' department will have a general ward for treatment of medical and surgical patients and isolated rooms for those suffering from contagious diseases. It will all be under one roof. A few guards will be able to watch and control all the patients. It is expected that work on the structure will be started at an early date and rapidly pushed to completion. It has been announced that an extension will be added to the eye, ear, nose and throat building at the base hospital, and that an isolation ward for nurses suffering from contagious diseases will be erected.

Eighty-Sixth Division, Camp Grant, Rockford, Ill.

MARCH 28, 1918.

DISEASE RATE

Camp Grant has set a mark the past week for all of the National Army cantonments to shoot at, and it is safe to predict that bull's-eyes will be few and far between. A noneffective rate of 28.3 per thousand and an annual admission rate of 783 per thousand will prove thorns in the side of many aspiring camps for some time to come. Further comment on disease conditions at Camp Grant is unnecessary.

INSPECTION

Another inspection has been passed in safety. Col. A. E. Truby was the ogre this time, but there was no necessity to call for a Siegfried. Contrary to the usual custom of inspectors, his comments on the excellence of the medical aspects of the camp were many, and on the other hand, there were but few things calling for adverse comment.

SOCIETY

A dinner and theater party was tendered by Lieut.-Col. James M. Phalen, division surgeon, to the surgeons of the divisional organizations last week as a windup of a series of weekly dinners and meetings that has been held each Thursday night at the different regimental infirmaries throughout the division. As a result of these informal gatherings, an unusual esprit de corps has arisen, welding the sanitary phase of the Eighty-Sixth Division into a compact body, inspired with the determination to maintain the axiom that the "Eighty-Sixth Division cannot be surpassed." At Colonel Phalen's dinner, to quote the words of the editor of the Podunk *Weekly Squeegee*, a good time was had by all.

PROMOTIONS

Promotions have been coming like Portia's "rain from Heaven." Major G. L. McKinney, M. C., sanitary inspector, was the guest of Colonel Raymond of the Central Department at a little lieutenant-colonelcy examination party recently and his promotion is hourly expected. The commanding officer of the sanitary train received an electroplating wire from Washington several weeks ago that transformed his gold leaves to silver, and he is now addressed as Lieut.-Col. S. J. Kopetzky, M. C. N. A. Major A. Schuyler Clark is understudying Lieutenant-Colonel Michie in the rôle of commanding officer of the base hospital, and the directorship of the field hospital section of the sanitary train has fallen on the shoulders of Major E. A. Spitzka of anatomic fame. Promotions to the rank of Major, M. R. C., have been received by: H. H. Thompson, surgeon, Three Hundred and Forty-Second Infantry; D. H. Silsby, surgeon, Three Hundred and Forty-Fourth Infantry; C. C. Vogel, surgeon, Three Hundred and Thirty-First Field Artillery; J. D. Dallenbach, surgeon, Three Hundred and Thirty-Second Field Artillery; F. Deacon, surgeon, Three Hundred and Thirty-Third Artillery, and H. S. Gradle, assistant to the division surgeon.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Fremont, Palo Alto, Calif., as commanding officer of base hospital, from San Francisco, Col. EUCLID B. FRICK.

To Camp Jackson, Columbia, S. C., *Camp Hancock,* Augusta, Ga., *Camp Wheeler,* Macon, Ga., *Camp Sheridan,* Montgomery, Ala., *Camp Beauregard,* Alexandria, La., *Sheffield, Ala.,* for inspection, and on completion *to his proper station,* Col. JOSEPH R. WHITE.

To Camp Upton, Yaphank, L. I., N. Y., for inspection, and on completion *to his proper station,* Col. PERCY M. ASHBURN.

To Fort Oglethorpe as commanding officer, United States Army General Hospital, from Fort Oglethorpe, Col. HENRY P. BIRMINGHAM.

To Fort Riley for inspection of medical officers, and on completion *to his proper station,* Col. EDWARD L. MUNSON. Base hospital, from San Francisco, Major FLETCHER O. McFARLAND.

To Camp Dix, Wrightstown, N. J., *Mineola,* L. I., N. Y., *New York City, Lakewood, N. J.,* for inspecting cardiovascular work, and on completion *to his proper station,* Lieut. Col. WARFIELD T. LONGCOPE. *To Camp Dix* for temporary duty, from Camp Doniphan, Lieut. Col. SAMUEL S. CREIGHTON. To assist camp surgeon, from Camp Devens, Major JOSEPH L. SINER.

To Camp Lee, Petersburg, Va., *Camp Meade,* Annapolis Junction, Md., *Camp Dix,* Wrightstown, N. J., base hospitals, and on completion *to his proper station,* from Camp Greene, Lieut.-Col. WILLIAM L. SHEEP.

To Camp Zachary Taylor, Louisville, Ky., *Camp Lee,* Petersburg, Va., *Camp Meade,* Annapolis Junction, Md., base hospitals, and on completion *to his proper station,* from Camp Sherman, Lieut.-Col. EDWARD C. HUBER.

To Hoboken, N. J., for duty, from San Francisco, Lieut.-Col. HENRY H. RUTHERFORD; from Fort Hamilton, Lieut. ERNEST H. SANITOR; from Rockefeller Institute, Lieut. VIRGIL H. CORNELL.

To Mineola, L. I., N. Y., for inspection and on completion *to his proper station,* Lieut.-Col. WALTER R. PARKER.

To Camp Grant, Rockford, Ill., base hospital, from San Francisco, Major ROBERT H. WILDS.

To Colonia, N. J., for duty, from Camp Pike, Major ALFRED P. UPSHUR.

To Gettysburg, Pa., as camp surgeon, from Camp Dix, Major DOUGLAS W. McENRY.

To Norfolk, Va., as sanitary inspector, from Camp Sevier, Major JAMES R. MANKIVELL.

To Rockefeller Institute for instruction in the serum therapy of pneumonia, from Camp Sherman, Major ALEXANDER W. WILLIAMS.

To Camp Logan, Houston, Texas, base hospital, from Camp Logan, Lieut. GEORGE U. LIPSHULCH.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. FREDERICK T. HILL.

To New Haven, Conn., for duty, from Williamsbridge, Lieut. ARDEN PREER.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp McClellan, Anniston, Ala., *Camp Pike,* Little Rock, Ark., *Camp Shelby,* Hattiesburg, Miss., base hospitals, and on completion *to his proper station, from* Camp Sheridan, Major JAMES S. McLESTER, Birmingham.

To Camp Meade, Annapolis Junction, Md., as member of the board of medical officers to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. BURTON F. AUSTIN, Mobile.

To Camp Sheridan, Montgomery, Ala., base hospital, from St. Louis, Lieut. LEMUEL B. NICHOLSON, Gadsden.

To Colgate Creek, Md., for duty, from Fort Oglethorpe, Capt. JOHN McI. WHITESIDE, Anniston.

To Dallas, Texas, Aviation Repair Depot, for duty, from Birmingham, Capt. GASTON W. ROGERS, Birmingham.

To Fort Oglethorpe for instruction, Lieuts. JOSEPH W. HUGHES, Birmingham; RALPH M. KIMBROUGH, Thomasville; from Camp Sheridan, Lieuts. BENJAMIN E. GRAHAM, Gurley; JAMES R. HAIGLER, Montgomery.

To Fort Riley for instruction, from Fort Riley, Lieut. RUSSELL CALLEN, Birmingham.

To Minneola, Long Island, N. Y., Hazelhurst Field, Capt. KOSCIUSKO W. CONSTANTINE, Birmingham.

To New Orleans, La., Charity Hospital for instruction, and on completion *to Camp MacArthur,* Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. THOMAS C. SAVAGE, Demopolis.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieut. DUKE C. BRADFORD, Springville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM A. STANLEY Enterprise.

Resignation of Lieut. CLARK HILL, Cance, accepted.

Arizona

To Camp Bowie, Fort Worth, Texas, base hospital, from St. Louis, Lieut. GEORGE W. PURCELL, Tucson.

To Fort Riley for instruction, from San Antonio, Lieut. SPENCER D. WHITING, Phoenix.

To Washington, D. C., for temporary duty, from Washington, Capt. FREDERICK T. WRIGHT, Douglas.

Arkansas

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Lieut. JAMES W. SLAUGHTER, Wesson.

To Camp Pike, Little Rock, Ark., base hospital, from St. Louis, Capt. SCOTT C. RUNNELLS, Little Rock.

To Camp Wheeler, Macon, Ga., base hospital, from St. Louis, Lieut. WALLACE D. ROSE, Little Rock.

To Fort Oglethorpe for instruction, from Camp Beauregard, Capt. JOHN H. BELL, Arkadelphia.

To Fort Riley for instruction, Lieut. ALBERT E. TATMAN, Eureka Springs.

To Jefferson Barracks, Mo., for duty, from Camp Pike, Capt. WILLIAM K. READ, Texarkana.

To San Antonio, Texas, Kelly Field, for duty, from Fort Riley, Lieut. R. NEWMAN BROWN, McGehee.

Canal Zone

To Panama Canal Department for duty, Lieut. JOHN D. ODOM, Cristobal.

California

To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Riley, Lieut. BENJAMIN E. MERRILL, Santa Paula.

To Camp Fremont, Palo Alto, Calif., base hospital, Capts. FRED P. BOWEN, Los Angeles; HERBERT A. MAKINSON, Oakland; SYLVAN L. HAAS, San Francisco; Lieuts. FRED O. BUTLER, Eldridge; HARRY J. CRAYCROFT, Fresno; CHARLES W. HARRISON, Loma Linda; WINFIELD L. BARTOW, ARTHUR L. PETER, Los Angeles; EARL B. FITZGERALD, Martinez; EDWIN R. FOUNTAIN, Merced; GEORGE T. WILHELM, Porterville; ERVIN J. CASPER, HERBERT J. COHN, EDWARD J. GHIDELLA, MELVILLE H. LONG, San Francisco; THOMAS L. BLANCHARD, San Jose.

To Camp Grant, Rockford, Ill., base hospital, Lieut. BRUCE McV. MACKALL, San Francisco.

To Camp Kearny, Linda Vista, Calif., as members of a board of medical officers to examine the command for tuberculosis, Capt. CHARLES E. IDE, Redlands; Lieut. LESTER E. TRETHAWAY, French Camp. Base hospital, Lieuts. PAUL E. DOLAN, Livermore; OTTO D. CHAMLEY, Los Angeles; EVERETT E. GRAY, Marysville; FRANK J. TILLMAN, Oxnard; ROBERT K. MACKLIN, Pasadena; GEORGE C. WRIGLEY, Sonora; HOMER R. EVANS, Trona.

To Camp Lee, Petersburg, Va., base hospital, Lieut. FREDERICK M. GODNEY, San Francisco.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. WALLACE A. REED, Covina.

To Fort Oglethorpe for instruction, from St. Louis, Capt. CHARLES J. HARBECK, Hayward.

To Fort Riley for instruction, Lieuts. ANGUS A. MACLENNAN, Los Angeles; from Camp Bowie, Lieut. FRANK A. WOODWARD, Los Angeles; from Camp Kearny, Lieut. JOHN P. JONES, National Soldiers Home.

To Fort Sam Houston, Texas, base hospital, Lieut. JOHN H. SCHAEFER, Kerman.

To Los Angeles, Calif., Camp Arcadia, for duty, from Los Angeles, Capt. ARTHUR N. BOBBITT, San Diego.

To Mineola, L. I., N. Y., for duty, Capt. JOSEPH E. GRANT, San Diego.

To report by wire to the Commanding General, Western Department, for assignment to duty, Capt. ROBERT B. DIMON, Los Angeles.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capts. FRANK DUNLAP, Brawley; JESSE M. BURLEW, Santa Ana.

Colorado

To Camp Beauregard, Alexandria, La.; *Camp MacArthur,* Waco, Texas; *Camp Travis,* Fort Sam Houston, Texas, base hospitals, and on completion *to his proper station,* from Camp Logan, Major JOSIAH N. HALL, Denver.

To Camp Cody, Deming, N. M., base hospital, from Chicago, Major EDWARD F. DEAN, Denver.

To Camp Crane, Allentown, Pa., for duty, from Camp Custer, Lieut. ROBERT R. PACKARD, Denver.

To Camp Dodge, Des Moines, Iowa, base hospital, from Fort Riley, Lieut. CARL W. SLUSSER, Denver.

To Camp Grant, Rockford, Ill., base hospital, Major CHARLES F. STOUGH, Colorado Springs.

To Fort Logan, Colo., for duty, Capt. JOHN GORSUCH; Lieuts. CHARLES W. METZ, HARRY S. SHAFER, Denver.

To Fort Riley for instruction, Capt. VICTOR B. AYERS, Buena Vista; Lieuts. CHARLES L. ORR, Alomosa; CLARENCE M. FROID, Central City; LOUIS G. BROWN, Colorado Springs; EARLSCOURT G. SHAFFER, Delta; WILLIAM D. FLEMING, ELBERT B. SWERDFEGER, Denver; JOSEPH R. HOOD, Golden; ARTHUR G. TAYLOR, Grand Junction; CLYDE T. KNUCKEY, Lamar; VIVIAN R. PENNOCK, Longmont; ROBERT C. BOWIE, Morgan; JULIAN C. KENNEDY, Oak Creek; AUGUSTUS F. ERICH, Paonia; ORTUS F. ADAMS, Segundo; FRANK J. BLACKMER, Steamboat Springs.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. JOSEPH A. KELLY, Oak Creek.

Physically incapacitated for active service, Lieut. BERT MENSER, Denver.

Discharged, according to cable received from General Pershing, Major EDWARD WILLIAM LAZELL, Denver.

Connecticut

To Camp Dix, Wrightstown, N. J., as assistant to the orthopedic surgeon in the camp, from Fort Oglethorpe, Lieut. EWALD E. OLSSON, Bridgeport.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Greene, Lieut. FRANK E. WILSON, Hartford.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Shelby, Lieut. RAYMOND V. QUINLAN, Meriden.

To Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Capt. CHARLES J. LEVERTY, Bridgeport.

To New Haven, Conn., for duty, Lieut. EUGENE M. BLAKE, New Haven.

Delaware

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. WILLARD R. PIERCE, Millford.

District of Columbia

To Allentown, Pa., Concentration Camp, for duty, from Walter Reed General Hospital, Capt. JOHN A. TALBOTT, Washington.

To Camp Forrest, Chickamauga Park, Ga., as division sanitary inspector, from Camp McClellan, Capt. WILLIAM H. LITTLEPAGE, Washington.

To Camp MacArthur, Waco, Texas, base hospital, Capt. HAMPDEN S. LEWIS, Washington.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. FRANK L. BISCOE, Washington.

To Fort Oglethorpe for instruction, from Cornell Medical College, Capt. WILLIAM J. MANNING; Lieut. GEORGE VON P. DAVIS, Washington.

To Hoboken, N. J., for duty, from Fort Hamilton, Capt. ARTHUR J. HALL, Washington.

To San Juan, Porto Rico, base hospital, Lieut. JOSE R. VILLAMIL, Washington.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from duty as a contract surgeon at Walter Reed General Hospital, Lieut. ALBERT J. MOLZAHN, Washington.

To Washington, D. C., for duty, from Hoboken, Major WILLIAM E. IRVING, Washington. As medical aide to the Commissioners of the District of Columbia, Lieut. JAMES J. KILROY, Washington.

To the inactive list, from District of Columbia, Lieut. JOHN W. BOVEE, Washington.

Florida

To Fort Oglethorpe for instruction, Capt. EUGENE J. JAUDON, Miami; from Fort Dade, Capt. GEORGE M. RANDALL, St. Petersburg. For instruction, Lieut. WILLIAM S. GRAMLING, Miami.

To Fort Screven, Ga., for temporary duty, from Fort Oglethorpe, Lieut. ROBERT F. McDANIEL, Deland.

Honorably discharged, Capt. LYSTON H. D. PIERCE, Tampa.

Resignation of Lieut. ARTHUR L. IZLAR, Ocala, accepted.

Georgia

To Camp Gordon, Atlanta, Ga., for duty, from Pittsburg, Lieut. JAMES T. CALLOWAY, Atlanta.

To Camp Screv, Greenville, S. C., base hospital, from Camp Lee, Capt. EDWARD M. COLEMAN, Athens.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. JAMES H. NICHOLSON, Madison; LAWSON S. RENTZ, Ray City.

To Chichamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. ROLAND L. BROOKS, Columbus.

To Fort McHenry, Md., for duty, Lieut. VIRGINIUS L. BROWN, Fort Valley.

To Fort Oglethorpe for instruction, Capt. JOHN McG. SPENCE, Camilla; Lieuts. JOHN W. SOMERVILLE, WILLIAM W. YOUNG, Atlanta; from Camp Gordon, Lieut. BUFORD C. BIRD, Colquitt.

To San Francisco, Cal., for temporary duty, from Fort Oglethorpe, Lieut. GEORGE B. SMITH, Rome.

To Mineola, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. JAMES L. BLAIR, Atlanta.

To the inactive list, from Camp Joseph E. Johnston, Lieut. WILLIAM A. DEAN, Atlanta.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. BEN H. CLIFTON, Lyons.

Resignation of Lieut. GORDON S. SUMNER, Foulan, accepted.

Idaho

To Camp Grant, Rockford, Ill., base hospital, Lieut. JOHN F. COUGHLIN, Twin Falls.

To Fort Riley for instruction, Capts. LOUIS PERKINS, Lewiston; FRANK L. BARROWS, Moscow; Lieuts. JAMES M. KERNS, Malad; ELLIS KACKLEY, Soda Springs.

Illinois

To Camp Cody, Deming, N. M., base hospital, Capt. ROLLIN T. WOODYATT, Chicago.

To Camp Crane, Allentown, Pa., for duty, from New York City, Capt. EDWARD S. BLAINE, Chicago; from Fort Ontario, Lieut. MARCUS H. HOBART, Chicago.

To Camp Custer, Battle Creek, Mich., base hospital, Major SAMUEL C. PLUMMER; Capt. DAVID C. STRAUS, Chicago.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. SAMUEL L. OREN, Lewistown.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. LYNN W. ELSTON, Chicago. For duty, from Fort Riley, Lieut. FREDERICK M. PHILLIPS, Mulkeytown. To examine the troops for cardiovascular diseases, and on completion *to Camp Dodge,* base hospital, Lieut. FRED M. SMITH, Chicago.

To Camp Doniphan, Fort Sill, Okla., base hospital, Capt. EDWARD C. SPITZ, East St. Louis.

To Camp Grant, Rockford, Ill., base hospital, Lieut. JOHN M. BERGER, Chicago.

To Camp Kearny, Linda Vista, Calif., base hospital, from Fort Riley, Lieut. RUDOLPH G. TENEROWICZ, Chicago.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HENRY S. BLESSE, South Chicago.

To Camp Logan, Houston, Texas, as division sanitary inspector from Camp Pike, Major RAY H. DAVIES, Chicago. To assist the board in examining the command for nervous and mental diseases, from Camp Beauregard, Lieut. WALTER C. COOK, Peoria.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Riley, Lieut. OSCAR CLEFF, Chicago.

To Camp Sherman, Chillicothe, Ohio; *Camp Custer,* Battle Creek, Mich.; *Camp Grant,* Rockford, Ill., base hospitals, and on completion *to his proper station,* from Camp Zachary Taylor, Major WALTER W. HAMBURGER, Chicago.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. JOHN PFLUETTER, HERMAN REISCH, Chicago; THEODORE F. REUSCH, Collinsville; CHARLES McLAUGHLIN, New Berlin; JOSEPH F. MIECZUNSKI, North Chicago.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capt. GEORGE RUBENSTEIN; Lieuts. MICHAEL ARCHANGEL GALGANO, JOSEPH P. GHEASSON, JOHN L. SEVICK, Chicago; COLIN K. ROSS, Hume; JOHN F. HENDERSON, Isabel; TAYLOR W. FUNKHOUSER, Mattoon.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Grant,* Rockford, Ill., base hospital, Capt. LOUIS J. FRITSKER, Chicago.

To Fort Benjamin Harrison for duty, from Fort Benjamin Harrison, Lieut. MARTIN W. HANSON, Easton.

To Fort Bliss, Texas, to examine the command for mental and nervous diseases from Camp Cody, Capt. ROMNEY M. RITCHEY, Elgin.

To Fort Oglethorpe for temporary duty, and on completion *to his proper station,* Major HARRY E. MOCK, Chicago. For instruction, Capts. HERBERT G. VAUGHAN, Oak Park; VICTOR M. DALY, Pontiac; Lieuts. LOUIS A. MANGAN, HARVEY D. THORNBURG, Chicago; TULLY O. HARDESTY, Jacksonville; WILLIAM F. BUCKNER, Watseka; from Camp Sherman, Lieut. CHARLES J. TIERNEY, Cicero; from Camp Wadsworth, Lieut. ALBERT R. CARTER, Murphysboro; from Chicago, Lieut. GEORGE W. STABEN, Springfield; from St. Louis, Lieut. FRED W. FIELDER, Batchtown.

To Fort Riley for instruction, Capts. JOHN F. TAYLOR, Buda; WILLIAM P. FORKIN, Chicago; CHARLES F. BURKHARDT, Effingham; Lieuts. WILLIAM O. WARREN, Carlyle; JOHN W. ECKSTEIN, ALVIN V. HELWIG, ALWIN A. HOLDEN, Chicago; ALVIN A. PETERSON, East Frankfort; CLINTON D. SWICKARD, Newman; WILLIAM A. HEAP, West Frankfort; from Fort Des Moines, Lieut. RICHARD J. BEDFORD, Dahinda; from St. Louis, Lieuts. WILLIAM E. BALSINGER, Chicago; BYFORD H. WEBB, West Frankfort.

To Fort Sam Houston, Texas, for duty, Capt. FRANK D. FRANCIS, Chicago.

To Hoboken, N. J., for duty, from Camp Pike, Lieut. LeROY E. ELLISON, DePue.

To Mineola, L. I., New York, Hazelhurst Field, from Chicago, Lieut. EUGENE CARY, Chicago.

To New York City for duty, and on completion *to his proper station,* Major JOHN A. HORNSBY, Chicago. Cornell Medical College for instruction in military roentgenology, from Fort Riley, Lieuts. ARTHUR E. ROGERS, Bloomington; GEORGE A. CONRAY, JOHN E. DAMRON, CARL B. HERRMANN, CARL J. JOHANNESSON, Chicago; CLARENCE P. HARRIS, KEITH T. MEYER, Oak Park.

To Nogales, Ariz., base hospital, from Camp Kearny, Capt. FREDERICK J. RILEY, Chicago.

To Philadelphia, Pa., for instruction in orthopedic surgery, from Philadelphia, Lieut. HARRY J. FORTIN, Chicago.

To Washington, D. C., for instruction, and on completion *to Newport News, Va.,* for duty, Lieut. GEORGE S. MATHERS, Chicago.

Discharged, according to cable received from General Pershing, Lieut. ISRAEL SHERRY, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE W. STEELY, Louisville.

Resignations of Capt. CLARENCE McCLELLAN, Chicago, and Lieut. GEORGE A. LIERLE, Burton, accepted.

Indiana

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Lieut. RAYMOND EVANS, Clinton.

To Camp Doniphan, Fort Sill, Okla., base hospital, Lieut. ALBERT E. BARBER, South Bend.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. ROBERT E. REPASS, Indianapolis.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. EDWARD I. RICHSTEIN, Evansville; HARVEY K. STORK, Huntingburg; LEO A. SALB, Jasper.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. ELMER E. EIFERT, Jasper.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. THOMAS J. DEHEY, South Bend.

To Hoboken, N. J., for duty, from Camp Lee, Capt. ALFRED P. ROOPE, Columbus.

To Mineola, Long Island, N. Y., Hazelhurst Field, from Indianapolis, Capt. ERNEST DeW. WALES, Indianapolis.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Medical School* for duty, from Army Medical School, Lieut. HARRY C. JOHNSON, Logansport.

Honorably discharged, Lieut. BENIAMIN S. POTTER, Cumberland.

Resignations of Capt. IRA A. NELSON, Crothersville, and Lieut. JAMES B. SHOEMAKER, Miami, accepted.

Iowa

To Camp Bowie, Fort Worth, Texas, base hospital, Capt. WALTER H. FOX, Waucoma; Lieuts. CLAIREMONT H. MITCHELL, Leon; FRANK A. PRIESSMAN, Mechanicsville.

To Camp Custer, Battle Creek, Mich., base hospital, from Boston, Capt. EDWARD S. PARKER, Ida Grove; from Fort Riley, Lieut. EDMUND W. WILSON, Rolfe.

To Camp Dix, Wrightstown, N. J., as a member of a board for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieuts. HARRY R. JENKINSON, Iowa City; HENRY I. McPHERRIN, Perry.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Lieut. LEE W. PRESCOTT, Sloan.

To Camp Grant, Rockford, Ill., for duty, from Camp Grant, Capt. JAMES J. DALY, Decorah.

To Camp Lee, Petersburg, Va., base hospital, from Chicago, Capt. EVARTS A. GRAHAM, Mason City. Base hospital, Lieut. ARTHUR C. BROWN, Council Bluffs.

To Camp Logan, Houston, Texas, to examine the command for mental and nervous diseases, from Camp Beauregard, Lieut. FISHER B. E. MILLER, Cherokee.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. EDGAR A. STEWART, Salem.

To Fort McHenry, Md., for temporary duty, from St. Louis, Capt. ROBERT J. LYNCH, Des Moines.

To Fort Oglethorpe for instruction, from Camp Dodge, Lieut. ADAM H. KONIGMACHER, Missouri Valley; from Chicago, Lieut. RAY R. KULP, Davenport.

To Fort Riley for instruction, Capts. HOWARD J. WRIGHT, Des Moines; CHARLES W. LYON, Marne; GUY SEWARD, Neola; CHARLES L. PATTERSON, West Side; Lieuts. FRANK P. RIGGLE, Cedar Rapids; JOSEPH W. SELLARDS, Clarinda; HENRY A. COBB, Council Bluffs; GEORGE S. YATES, Des Moines; EDWARD H. WHITE, Dubuque; ALEXANDER P. STEWART, Inwood; ALBERT J. CHARLTON, Lowden; CHETWYND M. FRANCHERE, Mason City; ARMAND NAFFZIGER, Merrill; HOWARD M. WILLIAMSON, Olin; FREDERICK M. HAHN, Webster City; from Fort Des Moines, JOHN J. OWES, Livermore.

To Hoboken, N. J., for duty, from Camp Bowie, Capt. PRENTISS N. CLEAVES, Cherokee.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieuts. MERL L. PINDELL, Macksburg; JACOB J. SYBENGA, Pella.

Honorably discharged on account of physical disability incident to the service, Capts. GEORGE I. LYTHCOTT, Des Moines. On account of physical disability existing prior to entrance into the service, Capt. LOUIS B. CARSON, Maquoketa.

Resignations of Lieuts. HARRY C. NICHOLS, Carson, and CHARLES E. KELLOGG, Shenandoah, accepted.

Kansas

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. ERNEST J. BECKNER, Goodland; WALTER P. STOLTENBERG, Kingsley; JOHN E. CASTLES, Lawrence; JOHN G. SWAILS, Wathena.

To Camp Custer, Battle Creek, Michigan, base hospital, from Fort Riley, Lieut. LEROY J. WHEELER, Ellinwood.

To Camp Kearny, Linda Vista, Calif., base hospital, from Fort Riley, Lieut. EDGAR C. TAYLOR, Pretty Prairie.

To Camp Lewis, American Lake, Washington, base hospital, from Fort Riley, Lieut. JAMES M. MOORE, Madison.

To Camp Logan, Houston, Texas, base hospital, from St. Louis, Lieut. RAYMOND H. MUNFORD, Dodge City.

To Camp Pike, Little Rock, Ark., base hospital, from Fort Riley, Capt. FREDERICK E. KRAFT, National Military Home.

To Fort Oglethorpe for instruction, from St. Louis, Lieut. CLIFFORD C. NESSELRODE, Kansas City.

To Fort Riley as divisional tuberculosis specialist, from Fort Riley, Capt. EDWARD H. JOHNSON, Peabody. Base hospital, Capt. JOHN M. SUTTON, Lincoln. For instruction, Capts. BENJAMIN F. HAWK, Anthony; LEONARD S. STEADMAN, Junction City; from Fort Riley, Capt. WILLIAM L. CARLYLE, Sabetha. For instruction, Lieuts. JOHN F. PATTISON, Augusta; JESSE W. BARKER, Chanute; ALMONTA A. HAYS, Cherokee; HERSCHEL L. HENDRICKS, Climax; MYRON L. WHITE, Coffeyville; FRED R. FUNK, Dreden; BENJAMIN H. MAYER, Ellsworth; WILLIAM L. WELSH, Hazelton; DELMAR H. SMITH, Junction City; JULIUS H. RABIN, THOMAS RICHMOND, RAYMOND A. YOUNG, Kansas City; MATTHAUS H. HORN, Marrowville; THOMAS A. COLEMAN, Medicine Lodge; JOHN L. PEPPERS, Newton; WILLIAM S. GRISELL, Ransom; ERNEST E. WHITE, Stockton; GUY R. McCREERY, Whiting; from Fort Riley, Lieuts. JAMES WELCH, Herington; GEORGE H. SMITH, Kansas City; from St. Louis, Lieut. HUGH E. CHARLES, Atchison.

To Jefferson Barracks, Mo., for duty, from Fort Riley, Capts. WILLIAM L. WILMOTH, Denison; HERBERT L. SCALES, Hutchinson; PAUL CHRISTMAN, Parsons; Lieut. JOHN C. LARDNER, Fort Scott.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM H. HEUSCHELE, Corning.

Kentucky

To Camp Dodge, Des Moines, Ia., base hospital, Capt. HUBERT M. MEREDITH, Scottsville.

To Camp Gordon, Atlanta, Ga., base hospital, from St. Louis, Lieut. BARNETT BELOTE, Mayfield.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. GEORGE G. HUNTER, Covington.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. EUGENE C. HARTMAN, Brandenburg.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. RODMAN H. WILLIAMS, New Hope.

To Fort Oglethorpe for instruction, Capt. MARVIN S. VEAL, Daniel Boone.

To Hoboken, N. J., for duty, from Camp Sheridan, Capt. FREDERICK L. KOONTZ, Louisville.

To New Haven, Conn., for observation and treatment, Lieut. ERWIN C. BRANDON, Elizabethtown.

Honorably discharged, Lieut. LYTLE ATHERTON, Livermore.

Resignation of Lieut. EDWARD ADAMS, Boaz, accepted.

Louisiana

To Camp Dix, Wrightstown, N. J., base hospital, from Philadelphia, Major KARL W. NEV, New Orleans.

To Camp MacArthur, Waco, Texas; *Camp Travis*, Fort Sam Houston, Texas; *Camp Logan*, Houston, Texas., base hospitals, and on completion *to his proper station*, from Camp Beauregard, Major JAMES B. GUTHRIE, New Orleans.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from San Antonio, Lieut. POPE W. ODEN, Shreveport.

To Colonie Creek, Md., for duty, from Camp Joseph E. Johnston, Lieut. ERASTUS L. MILLER, Longville.

To Fort Oglethorpe for instruction, from Camp Beauregard, Lieut. JOEL A. WILKINSON, Homer.

To San Antonio, Texas, base hospital from Fort Oglethorpe, Lieut. WALTER P. LAMBETH, Allendale.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, Lieut. JAMES L. LOCASCIO, New Orleans.

Maine

To Camp Dodge, Des Moines, Iowa, base hospital, from Army Medical School, Lieut. CARL G. DENNETT, Unity.

To Fort Oglethorpe for instruction, Lieut. DEFOREST WEEKS, Woodfords.

To Garden City, Long Island, N. Y., for duty, from Portland, Maine, Lieut. JULIUS C. ORAM, Portland.

Maryland

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. JAMES S. SPEED, Baltimore.

To Camp Custer, Battle Creek, Mich., as a member of the board for the examination of the command for tuberculosis, from Camp Lee, Lieut. LOUIS L. JACOBS, Baltimore.

To Camp MacArthur, Waco, Texas, for duty, and on completion *to his proper station*, Major CHARLES BAGLEY, Ja., Baltimore.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Sevier, Lieut. WILLIAM H. HOUSTON, Fishing Creek.

To Camp Shelby, Hattiesburg, Miss., as division tuberculosis specialist, from Camp Sheridan, Lieut. LOUIS M. LIMBAUGH, Baltimore.

To Camp Travis, San Antonio, Texas, to make a further nutritional survey, from San Antonio, Lieut. ALFRED T. SHOHL, Magnolia.

To Fort Oglethorpe as assistant in the school for instruction in urology and dermatology, Lieut. WILFORD A. H. COUNCILL, Baltimore.

To Fort Riley for instruction, from San Antonio, Capt. CHARLES W. RAUSCHENBACH, Baltimore.

To Hoboken, N. J., for duty, from Camp Meade, Capt. HUGH W. BRENT, Baltimore; from Camp Dodge, Lieut. WILLIAM H. SMITH, Ja., Hazerstown.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. MAURICE FELDMAN, Baltimore.

To Plattsburg, N. Y., for duty, from Fort Oglethorpe, Lieut. JOHN C. NORTON, Baltimore.

Massachusetts

To Army Medical School, to give orthopedic instruction, and on completion *to his proper station*, from Boston, Capt. MARK H. ROGERS, Boston.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. GEORGE MOSSMAN, Westminster.

To Camp Dix, Wrightstown, N. J., as assistant to the orthopedic surgeon in the camp, from Fort Oglethorpe, Lieut. REUBEN L. LEVERTON, Boston.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Jackson, Capt. JOHN M. BIRNIE, Springfield.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ALFRED E. KING, Watertown.

To Camp Pike, Little Rock, Ark., as division psychiatrist, from Camp Pike, Capt. CHESTER C. BECKLEY, Lancaster.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. GEORGE P. COGSWELL, Cambridge; Lieut. EDWARD A. DUFFY, Boston.

To Fort Oglethorpe for instruction, Capt. ARTHUR W. AKERLEY, Boston; from Camp Shelby, Capt. HENRY L. NOEL, Lexington; from Camp Devens, Lieuts. ABRAHAM HASKINS, Boston; JACOB GENNART, New Bedford.

To Fort Riley, and *Chicago, Ill.*, for inspection and on completion *to his proper station*, Major ALEXANDER S. BEGG, Cambridge. For instruction, from Camp Bowie, Lieut. JOSEPH D. COLLINS, Northampton.

To Hoboken, N. J., for duty, from Hoboken, Major JAMES N. PASCOE, Fort Revere.

To New Haven, Conn., for duty, from Camp Joseph E. Johnston, Capt. CHARLES E. PERRY, Haydensville.

To Fort MacArthur, Neurological Institute, for intensive training, Lieut. WILLIAM A. MacINTIRE, Grafton.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, Lieut. WARREN S. SHIELDS, Boston. For instruction in the army, therapy of pneumonia, Lieuts. JAMES H. PARK, Boston; WILLIAM E. ADAMS, Springfield.

To Washington, D. C., for duty, Lieuts. FRANCIS W. PEABODY, Boston; HOWARD K. TUTTLE, Tewksbury.

Honorably discharged, Lieut. PATRICK MEECHAN, Lowell.

Michigan

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Lieut. ARTHUR R. SMECK, Detroit.

To Camp Jackson, Columbia, S. C., base hospital, from St. Louis, Capt. HENRY J. MEYER, Saginaw.

To Camp Lee, Petersburg, Va., base hospital, Lieut. MORTIMER E. DANFORTH, Stanton.

To Camp MacArthur, Waco, Texas, base hospital, from Pittsburgh, Lieut. JESSE O. PARKER, Owosso.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. ROBERT E. WEEKS, Augusta; ARTHUR J. SAHS, Cheboygan; BERNARD J. HEETDERKS, Grand Rapids.

To Camp Taylor, Louisville, Ky., base hospital, from Fort Sam Houston, Lieut. KENNETH F. MAXEY, Detroit.

To Dayton, Ohio, Wilbur Wright Field, from Fairfield, Lieut. PHILLIP I. FROUDE, Detroit.

To Fort Oglethorpe for instruction, from Camp Beauregard, Lieut. FRANK S. COLLER, Vicksburg; from Chicago, Lieuts. CARROLL S. THOMSON, Clinton; WILLIAM G. HOEBEKE, Kalamazoo.

To Hoboken, N. J., for duty, from Camp Custer, Major RALPH E. BALCH, Kalamazoo; from Camp Greene, Lieut. ALBERT S. BARR, Greenville.

To Rochester, Minn., Mayo Clinic for instruction and on completion *to Camp Dodge*, Des Moines, Ia., base hospital, Lieut. GROVER C. WOOD, Detroit.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, from Fort Riley, Lieut. ROBERT F. STARK, Allegan.

To Waynesville, N. C., for duty from Fort Oglethorpe, Lieut. RICHARD H. JUDD, Detroit.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES L. WALSH, Iron River; HARRY D. OBERT, Jackson.

Resignation of Capt. WILLIS W. CHAPMAN, Cheboygan, accepted.

Minnesota

To Ann Arbor, Mich., University of Michigan, for instruction, from Winnipeg, Major JAMES F. CORBETT, Minneapolis.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. IVER F. SELLESETH, Minneapolis.

To Camp Grant, Rockford, Ill., base hospital, Lieuts. THEODORE L. HANSEN, Albert Lea; ROBERT E. SPINKS, Middle River; IRVING G. WITTROUT, Minneapolis; JOHN J. O'HARA, WILLIAM R. WINNE, Rochester; WILLIAM A. MEIERDING, Springfield; JOSEPH D. WALLER, Wilmont.

To Chicago, Ill., for instruction, from Camp MacArthur, Lieut. CARL PAULSON, Minneapolis.

To Fort Oglethorpe for instruction, from Chicago, Capt. JAMES A. McLAUGHLIN, Minneapolis.

To Fort Riley for instruction, Capt. JOHN S. MACNIE, Minneapolis; Lieuts. ALBERT H. WILLIAMS, Backus; THEODORE H. DEDOLPH, Braham; WILLIAM J. EKLUND, Duluth; HUGO S. ARCHER, Redwood Falls; from Fort Riley, Lieut. HENRY E. DOUGLAS, Hutchinson.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieut. PAUL S. EPPERSON, Biwabik; FRANK J. ELIAS, Duluth; URSES V. PORTMANN, Jackson.

Mississippi

To Camp Bowie, Fort Worth, Texas, base hospital, Lieuts. LEWIS W. KITCHENS, Strayhorn; FRANKLIN H. RUSSELL, Wayside.

To Camp Logan, Houston, Texas, to assist the board in examining the command for nervous and mental diseases, from Camp Beauregard, Lieut. THOMAS C. CLEVELAND, Meridian.

Missouri

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Riley, Capt. JOSEPH B. UNSELL, Louisiana Base Hospital, Lieut. HAROLD W. FAY, St. Louis; from Pittsburgh, Lieut. JAMES E. DEWEY, Springfield.

To Camp Crane, Allentown, Pa., for duty, from Fort Myer, Lieut. LEE B. VINEMILLER, Farley.

To Camp Dix, Wrightstown, N. J., as member of a board for the special examination of the command for tuberculosis, from Fort Oglethorpe, Capt. SOLON CAMERON, St. Louis.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Lieut. SAMUEL W. HOLT, Steffenville.

To Camp Grant, Rockford, Ill., base hospital, from Fort Riley, Lieut. WALTER E. HOLBROCK, Kansas City.

To Camp Lee, Petersburg, Va., base hospital, from Fort Riley, Lieut. JOHN A. FLURY, St. Louis.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. JOHN S. WEAVER, Kansas City.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Grant*, Rockford, Ill., base hospital, Capt. WILLIAM M. WALLIS, Maryville.

To Dallas, Texas, Love Field, from St. Louis, Capt. FREDERICK C. SIMON, Lieut. JOSEPH J. REILLY, St. Louis.

To Fort Oglethorpe for instruction, from St. Louis, Capts. WALTER C. G. KIRCHNER, JAMES W. SHANKLAND, St. Louis; Lieuts. HOWARD O. LIENHARDT, Kansas City; JOHN W. STEWART, St. Louis; from Camp Sherman, Lieut. JOHN J. DE VEREAUX, Hawk Point.

To Fort Riley for instruction, Capt. GAIL B. ALLES, Lamar; from Camp Logan, Capt. JOHN G. BIRCHETT, Cardwell. Base hospital, Lieut. CHARLES M. MILLER, St. Louis. For duty, from Fort Riley, Lieut. LOUIS W. SCHREIBER, St. Louis. For instruction, Lieuts. LARKIN E. WILLIAMS, Clover; NED C. LEWIS, Kansas City; WILFORD W. MARTIN, Kirksville; LEE R. FARMER, Lees Summit; GEORGE R. PENNINGTON, St. Charles; ARTHUR W. KOESSEL, JOHN H. MURPHY, EDWIN A. NOLL, St. Louis; JOHN M. WILSON, Stoutsville; from Fort Riley, Lieut. JOHN R. BRUCE, Marshfield; from St. Louis, Lieut. BERNHARDT W. KLIPPEL, St. Louis.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Capt. FRANK J. TAINTER, St. Charles.

To Jefferson Barracks, Mo., for duty, from Camp Pike, Lieut. KIRBY C. GARNER, Crosstown.

To New Orleans, Charity Hospital, for instruction, and on completion *to his proper station*, from Camp Shelby, Capt. HORACE A. LOVE, Springfield.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieut. JOSEPH C. PEDEN, St. Louis.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, from Fort Riley, Lieut. URSA C. WESTON, Osgood.

To San Antonio, Texas, Kelly Field, from Kansas City, Lieut. CLINTON K. SMITH, Kansas City.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. LEVI M. ASBURY, Dalton; Lieut. FRIEDRICH A. HECKER, Kansas City.

Montana

To Camp Dodge, Des Moines, Ia., base hospital, Lieut. MARK T. VORNHOLT, Glasgow.

To Camp Grant, Rockford, Ill., base hospital, Lieut. WILLIAM E. LONG, Macondeli; from Chicago, Lieut. ALEXANDER M. MACAULAY, Great Falls.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. ALBERT A. PASTENE, Chester.

To Fort Riley, for instruction, Capts. CHARLES E. K. VIDAL, Great Falls; JAMES N. ALEXANDER, Roundup; Lieuts. ARTHUR S. NEEDLES, East Scebey; GEORGE A. BAKER, Ekalaka; EDWARD E. GANS, Judith Gap; PAUL L. GREENE, Livingston; JULIO R. SOLTERO, Moore.

To New York City, Cornell Medical College, for instruction in military roentgenology from Fort Riley, Lieut. JOHN E. BRIDENBAUGH, Billings.

Nebraska

To Camp Crane, Allentown, Pa., for duty, from New York, Capt. CHARLES E. REMY, Johnson.

To Camp Dix, Wrightstown, N. J., as member of the board of medical officers to examine the command for tuberculosis, Lieut. NEAL P. McKEE, Atkinson.

To Camp Dodge, Des Moines, Ia., base hospital, Lieuts. CLARENCE E. SMART, Alliance; FRANCIS M. SWARTWOOD, Bethany; WILLIAM J. HAWES, Fairbury; HARRY W. McFADDEN, Greenwood; HAL D. WILMOTH, Lincoln; ARTHUR M. SONNELAND, Norfolk; CHARLES P. CHARLTON, Palmira; RAYMOND B. McNAMARA, Wynot.

To Fort Bayard for observation and treatment, Capt. PHILLIP M. DALE, Greenwood.

To Fort Des Moines, Ia., for temporary duty, Capt. JAMES McD. PATTON, Omaha.

To Fort Riley for instruction, Capts. CLAUDE LEE WILLIS, Anselmo; GEORGE H. BENTZ, Fairfield; EUGENE C. FOOTE, Hastings; GEORGE H. ABROUGH, Merna; MERIT WOOD, Tekamah; Lieuts. HERBERT P. WALKER, Albion; FRANK A. WILMOT, Bethany; FRANCIS J. STEISKAL, Crete; EDWARD O. WILSON, Madison; ADOLPH W. THOMS, Odell; ADOLPH F. SRB, CARL L. SWANSON, Omaha; from San Antonio, Lieut. IRWIN LIMBURG, Walthill; from St. Louis, Lieut. ROBERT C. PANTER, Dorchester.

To Hoboken, N. J., for duty, from Camp Logan, Capt. FRANK M. BARNS, Harrison.

To New York City, Cornell Medical College, for instruction in military roentgenology from Fort Riley, Lieut. GEORGE F. HAWES, Arlington.

To Omaha, Neb., for duty, and on completion to Fort Des Moines, Ia., for temporary duty, from Fort Omaha, Lieut. LEONARD O. RIGGERT, Omaha.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Fort Riley, Lieut. CLARENCE M. HYLAND, Omaha.

Resignation of Lieut. WILLIAM O. AKERS, Florence, accepted.

Nevada

To Camp Kearny, Linda Vista, Calif., base hospital, Lieut. CHARLES E. SECOR, Tuscarora.

To Fort Riley for instruction Lieut. GRANVILLE E. LEAVITT, Yerlington; from Camp Kearny, Lieut. ISAAC ALEXANDER, Ely.

New Jersey

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. ADDISON H. BISSELL, Newark.

To Camp Lee, Petersburg, Va., base hospital, Capt. CLEMENT J. HARLEPEN, Newark.

To Fort McHenry, Md., for duty, Lieut. EDWARD F. SYROP, Bayonne.

To Fort Oglethorpe for instruction, Lieuts. NATHAN HELLER, SIDNEY B. RAWITZ, ABRAHAM G. REINFELD, Newark; PHILIP J. DORETY, Trenton; from Camp Joseph E. Johnston, Lieut. HARVEY M. EWING, Upper Montclair.

To Hampton, Va., Langley Field, from Fort Oglethorpe, Lieut. BARNEY D. LAVINE, Trenton.

To Hoboken, N. J., for duty, from Fort Hamilton, Capt. FRANCIS M. McMURROUGH, Jersey City.

To New York City, base hospital, Capt. MICHAEL S. CRANELLI, Hoboken; from Camp Dix, Capt. NELSON K. BENTON, Newark.

To Watertown, Mass., Watertown Arsenal, for duty, from Fort Oglethorpe, Lieut. GEORGE B. VERBECK, Caldwell.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. MICHAEL VINCIGUERRA, Elizabeth.

Resignation of Lieut. CHARLES M. GRAY, Vineland, accepted.

New Mexico

To Fort Leavenworth, Kan., Department Laboratory, for duty, Lieut. NATHANIEL D. FRAZIN, Tyrone.

To Fort Riley for instruction, Lieut. GEORGE L. WYCKOFF, Dulee.

New York

To Asheville, N. C., base hospital, from Camp Cody, Capt. JOSEPH E. JENNINGS, New York City; from Camp Lee, Capt. FREDERICK B. HUMPHREYS, Lieut. WILLIAM V. HEALEY, New York City; from Fort Logan H. Roots, Lieut. HENRY L. WENNER, Ja., New York City; from Fort Oglethorpe, Lieuts. ARCHIE E. GORDIN, EDWIN HENES, Jr., ALFRED F. ORTH, THEODORE M. SANDERS, New York City.

To Brooklyn, N. Y., for duty, Lieut. HUDSON R. MILLER, New York City.

To Camp Crane, Allentown, Pa., for duty, from Camp Sherman, Capt. KARL OSTERHAUS, New York City; from Fort Oglethorpe, Lieuts. DAVID H. HALLOCK, HARRY D. SONNENSCHEIN, New York City; from Rockefeller Institute, Lieut. SEYMOUR G. CLARK, Brooklyn.

To Camp Devens, Ayer, Mass., for duty, from Camp Devens, Capt. RAYMOND C. HILL, Bath. Base hospital, Lieut. JOHN A. WENTWORTH, Clifton Springs.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Joseph E. Johnston, Capt. FRANK McLEAN, New York City; as member of a board for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. CHARLES ROSE MILLER, Ray Brook.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Hancock, Capt. MAX A. LEVY, New York City.

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Major DAYTON C. WIGGIN, Rosebank.

To Camp Lee, Petersburg, Va., *Camp Greene*, Charlotte, N. C., *Camp Jackson*, Columbia, S. C., *Camp Hancock*, August, Ga., base hospitals, and on completion *to his proper station*, from Camp Meade, Major EDWARD E. TULL, New York City. *To Camp Lee*, base hospital, Lieuts. SAMUEL MECHLOWITZ, Brooklyn; FRANCIS J. CLINE, Yonkers.

To Camp Meade, Annapolis Junction, Md., as member of the board of medical officers to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. ALEXANDER ALTSCHUL, New York City.

To Camp Upton, Long Island, N. Y., as assistant to the camp surgeon, from Camp Upton, Capt. RALPH E. BRODIE, Albion. Base hospital, from Camp Upton, Capt. WALTER H. VOSBURG, Dunkirk; from Camp Grant, Lieut. JOSEPH F. WARD, BROOKLYN.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Sam Houston, Lieut. ROBERT L. LEVY, New York City.

To Cape May, N. J., for duty, from Newport News, Capt. SAMUEL R. HURLBUT, Lockport; from Fort Oglethorpe, Lieut. HERMAN F. LAMPE, New York City.

To Corpus Christi, Texas, for duty, from Camp Custer, Capt. ALFRED W. ARMSTRONG, Canadaigua.

To Fort H. G. Wright, New York, to examine the troops and on completion *to Watertown, Mass.*, for the same duty, and on completion *to Springfield, Mass.*, for the same duty, from Camp Devens, Capt. BRUNO S. HOROWICZ, New York City. Lieut. ADELBERT C. ABBOTT, Syracuse.

To Fort McHenry, Md., for duty, Lieuts. JULIUS E. ALTER, Bronx; MORRIS L. POLLACK, Brooklyn; BENJAMIN ROSENTHAL, SOLOMON C. WOLFF, New York City.

To Fort Oglethorpe for instruction, from Army Medical School, Capt. JAMES C. DAVIS, Rochester; from Camp Devens, Capt. WILMARTH S. BUCK, Plattsburg; from Camp Sevier, Capt. JOS. A. LANAHAN, Albany; from Camp Upton, Capt. EDWARD H. VINES, New York City; from duty as a contract surgeon at Fort Oglethorpe, Capt. FRANCIS B. TRUDEAU, Saranac Lake. For instruction, Lieuts. SAMUEL BLUMENTHAL, Brooklyn; HIRAM S. YELLEN, Buffalo; WILBUR F. MacDONALD, Delanson; FRANCIS J. McEVILLY, Tarrytown; KEVORK N. BOSTANIAN, JOHN F. LEWIS, DAVID PASHMAN, MAX I. ROVEN, New York City; JOHN A. JOHNSON, Ja., Olean; CHARLES RIEGER, Port Richmond, Long Island; from Army Medical School, Lieut. PORTER A. STEELE, Buffalo; from Camp Upton, Lieut. FREDERICK L. BARNUM, Kingston; ANDREW K. ANDERSON, Long Island City.

To Fort Riley for instruction, Lieut. MILTON CHAPMAN, Rochester; from Fort Riley, Lieut. CARL G. FROST, Buffalo.

To Hoboken, N. J., for duty, from Camp Jackson, Capt. HARRY B. HUYER, Williamsville; from Camp Shelby, Capt. RAYMOND SANDERSON, Poughkeepsie.

To Mineola, Long Island, N. Y., Hazelhurst Field, from Fort Sill, Capt. EDWIN S. INGERSOLL, Rochester.

To New York City, base hospital, from New York City, Major WILLIAM H. STEWART, New York City. Base hospital, Capts. HARRY C. SHULTZ DE BRUN, CHARLES H. SANFORD, New York City; from Williamsbridge, Capt. DEWITT STETTEN, New York City. Base hospital, Lieuts. ABRAHAM L. GARRAT, ROBERT C. SCHLEUSSNER, New York City; from Philadelphia, Lieut. OTTO C. PICKHARDT, New York City. Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieuts. FRANCIS H. CURRIN, Brooklyn; IRVING EPSTEIN, JESSE J. HAND, JOSEPH HOROWITZ, HENRY K. SCHNEIDER, New York City.

To Otisville, N. Y., as commanding officer of army hospital, Capt. WILLIAM J. HAMMER, New York City.

To Rochester, N. Y., base hospital, from Fort Oglethorpe, Lieut. HIRAM RANDALL, Rochester.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School*, for duty, Lieut. HAROLD E. SMITH, Long Island, N. Y. For instruction in serum therapy of pneumonia, from Washington, Lieut. MARTIN F. NOLAN, Tonawanda.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. RICHARD S. FARR, New York City.

To Washington, D. C., for duty in the Surgeon-General's Office, Major SIGMUND POLLITZER, New York City.

To Waynesville, N. C., for duty, from Camp Joseph E. Johnston, Major CHARLES E. DAVIS, Albany.

Honorably discharged, Lieut. CHARLES W. DUNN, New York City. On account of physical disability existing prior to entrance into the service, Lieut. ALBERT W. GILMARTIN, Brooklyn.

North Carolina

To Camp Custer, Battle Creek, Mich., as a member of the board for the examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. CHARLES T. VERNON, Burlington.

To Camp Meade, Annapolis Junction, Md., base hospital, from Camp Meade, Lieut. RALPH C. SADLER, Whiteville.

To Hoboken, N. J., for duty, from Camp Greene, Capt. CHARLES W. BANNER, Greensboro.

To New York City, Neurological Institute, for intensive training, Lieut. EVERETT S. BARR, Asheville.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, Lieut. WILLIAM C. DUFFY, New Bern.

Resignation of Capt. ROBERT L. GIBBON, Charlotte.

North Dakota

To Camp Meade, Annapolis Junction, Md., as member of the board of medical officers to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. HERBERT B. WENTZ, Verona.

To Fort Riley for instruction, Capt. GARLOS S. JONES, Williston; Lieuts. LOUIS B. DERDIGER, Esmond; ARTHUR PEAKE, Grand Forks; JOHN W. NEWLOVE, Minot; FRANK E. WEED, Park River; GUSTAVE L. RUDELL, Plaza; LLOYD H. VAN SLYKE, Tioga; EVERETT E. GREEN, Westhope.

To Jefferson Barracks, Mo., for duty, from Fort Riley, Capt. BERNARD S. NICKERSON, Mandan.

Ohio

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. ROBERT C. AUSTIN, Payton.

To Camp Dix, Wrightstown, N. J., as assistant to the orthopedic surgeon in the camp, from Fort Oglethorpe, Lieut. HENRY J. PEAVY, Jr., Redo. As member of the board of medical officers to examine the command for tuberculosis, from Fort Oglethorpe, Lieut. CHARLES H. HAMMA, Springfield.

To Camp Grant, Rockford, Ill., base hospital, from Fort Riley, Lieut. CHARLES E. BEAMAN, Cincinnati.

To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. HAROLD F. KOPPE, Logan.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Chicago, Capt. JOHN A. CALDWELL, Cincinnati.

To Camp Upton, Long Island, N. Y., for duty, from Southern Department, Major ROBERT CONARD, Blanchester.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from St. Louis, Capt. IVAN I. YODER, Cleveland. Base hospital, Lieut. CHARLES C. SHEARER, Cincinnati.

To Cleveland, Ohio, for duty, and on completion *to the inactive list,* Capt. HARRY G. SLOAN, Cleveland.

To Fort Bliss, Texas, to examine the command for mental and nervous diseases, from Camp Cody, Lieut. JAMES A. BELYEA, Toledo.

To Fort McHenry, Md., for temporary duty, from Fort Oglethorpe, Lieut. JULIAN H. BUFF, Cincinnati.

To Fort McPherson, Ga., for duty, from Rochester, N. Y., Major JOSEPH L. RANSCHOFF, Cincinnati.

To Fort Oglethorpe as instructor, Major ROGERS S. MORRIS, Cincinnati. For instruction, Capt. FRANKLIN W. ROUSH, Dayton; Lieuts. JOHN T. BOYKIN, Cleveland; TODD CARIS, Mansfield.

To Fort Riley for instruction, Lieuts. OSCAR E. TOWNSEND, Cleveland; FRED H. MILLER, Grand Valley.

To Hampton, Va., Langley Field, from Fort Oglethorpe, Lieut. ROBERT McQ. ANDRE, Springfield.

To Hoboken, N. J., for duty, from Fort McHenry, Major GEORGE C. SCHAEFFER, Columbus. For duty, Lieut. J. CLIFF WETHERILL, Weston.

To Lake Charles, La., Signal Corps Aviation School, from Fort Oglethorpe, Lieut. JOHN C. MARTIN, New Concord.

To Mineola, Long Island, N. Y., Hazelhurst Field, from Cincinnati, Capt. ARTHUR C. BACHMEYER, Cincinnati.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. JAMES E. STEWART, Akron; HENRY SNOW, Jr., Norwood.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School* for duty, from Fort Riley, Lieuts. FRANK A. LAWRENCE, Elyria; JOHN D. BOYLAN, Milford Center.

To the inactive list, from Lakewood, N. J., Capt. PAUL J. COLLANDER, Ashtabula.

Honorably discharged, Capt. HARRY W. SHAW, Junction City. On account of physical disability, Capt. GEORGE RUBEN CLAYTON, Lima. On account of physical disability existing prior to entrance into the service, Capts. MERTON C. PHILLIPS, Fremont; HARRY T. MILLER, Springfield; Lieut. BYRON BING, Pomeroy.

Oklahoma

To Camp Crane, Allentown, Pa., for duty, from Camp Cody, Capt. RALPH V. SMITH, Tulsa.

To Camp MacArthur, Waco, Texas, as orthopedic surgeon in the camp, from Camp Beauregard, Capt. LEONARD S. WILLOUR, McAlester.

To Chicago, Ill., for instruction, Capt. FANTON M. SANGER, Oklahoma City.

To Fort Riley for instruction, Lieuts. OSCAR W. TEMPLIN, Alva; REUBEN W. WILLIAMS, Anadarko; SAMUEL M. STONE, Edmond; JOHN H. SHAUNTY, Eufaula; WILLIAM McILWAIN, Lone Wolf; OSCAR J. STREET, Louis; JOSEPH G. NOBLE, Muskogee; JESSE M. PEMBERTON, Okemah; GALVIN L. JOHNSON, Pauls Valley; HARDIN WALKER, Rosston; FREDERICK C. BROWN, Sparks; WILLIAM W. LIGHTFOOT, Thackerville; CASPER A. HICKS, Wetumka; CHARLES W. TEDROWE, Woodward; SIMON W. STRADER, Yukon.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Fort Riley, Lieut. GUY P. McNAUGHTON, Miami.

Oregon

To Fort Riley for instruction, Lieut. JULIUS H. GARNJOBST, Salem.

To Jefferson Barracks, Mo., for duty, from Camp Logan, Capt. LEO E. CHILTON, Canyon City.

To Philadelphia, Pa., for orthopedic instruction, from Chicago, Capt. EDGAR H. BROWN, McMinville.

Discharged, according to cable received from General Pershing, J. PLAMONDON, Pendleton.

Pennsylvania

To Army Medical School for temporary duty, from Fort Oglethorpe, Lieut. WILLIAM Q. MARKELL, Pittsburgh.

To Asheville, N. C., base hospital, from Camp Fremont, Lieut. WILLIAMS S. LONG, Reading.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. MICHAEL M. WOLFE, Philadelphia.

To Camp Beauregard, Alexandria, La., base hospital, from Fort Oglethorpe, Lieut. DEFERREST BALLOU, Jr., Philadelphia.

To Camp Crane, Allentown, Pa., for duty, from Camp Logan, Lieut. RALPH L. RUTLEDGE, McKeesport; from Fort Jay, Lieut. JOHN W. FREY, Avalon; from Fort Oglethorpe, Lieut. HARRY O. POLLOCK, Wilmerding.

To Camp Custer, Battle Creek, Mich., base hospital, from Pittsburgh, Lieut. SIMON A. LEVEY, Pittsburgh.

To Camp Dix, Wrightstown, N. J., as member of a board for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. WILLIAM J. DAVIS, Wilkes-Barre. Base hospital, from Camp McClellan, Lieut. WILLIAM WEISS, Philadelphia.

To Camp Dodge, Des Moines, Iowa, base hospital, from Army Medical School, Lieut. ARTHUR ST. C. BRUMBAUGH, Altoona; from St. Louis, Lieut. SAMUEL STALBERG, Philadelphia.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Hancock, Lieut. LEON FELDERMAN, Philadelphia.

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Capt. JOHN W. BOGGS, Philadelphia.

To Camp Jackson, Columbia, S. C., as divisional tuberculosis specialist, from Camp Jackson, Major JOHN W. BOYCE, Pittsburgh.

To Camp Lee, Petersburg, Va., base hospital, Lieut. DENNIS A. MYERS, Philadelphia.

To Camp Meade, Annapolis Junction, Md., for instruction in administrative work, and on completion *to his proper station,* from Edgewood, Md., Lieut. FRANKLIN P. PHILLIPS, Clarion.

To Camp Morrison, Va., camp hospital, from Newport News, Lieut. EDWARD A. STEINHEILDER, Philadelphia. For duty, from Pittsburgh, Lieut. EDWIN P. BUCHANAN, Pittsburgh.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Sam Houston, Lieut. CHARLES W. McCLURE, South Bethlehem.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. EDWARD K. GOLDING, Reading.

To Dallas, Texas, Love Field, from Pittsburgh, Lieut. CHARLES R. BRENNER, Pittsburgh.

To Fort Bliss, Texas, to examine the command for mental and nervous diseases, from Camp Cody, Lieut. EMORY L. DRAVO, Warren.

To Fort H. G. Wright, N. Y., to examine the troops, and on completion *to Watertown, Mass.,* for the same duty, and on completion *to Springfield, Mass.,* for the same duty, from Camp Devens, Lieut. HARRISON M. STEWART, Mont Alto.

To Fort Oglethorpe for instruction, Major SENECA EGBERT, Philadelphia; from Camp Devens, Capt. WILLIAM T. McCONVILLE, Honesdale. For instruction, Lieuts. HAROLD W. KINDERMAN, Philadelphia; CLARENCE L. YOUNG, Pockville; from Camp Hancock, Lieut. ELI H. PORCH, Philadelphia; from Camp Joseph E. Johnston, Lieut. HARRY J. STOCKBERGER, Claridge; from Camp Meade, Lieuts. PHILIP S. ROSENBLUM, Philadelphia; GEORGE G. GRAZIER, Pittsburgh; from Camp Sevier, Lieut. BRADLEY H. HOKE, Coalport.

To Fort Sill, Okla., Post Field, from Lake Charles, La., Capt. ROBERT S. McCOMBS, Philadelphia.

To Fort Worth, Texas, Taliaferro Field, from Pittsburgh, Lieut. GEORGE S. CUNNINGHAM, Pittsburgh.

To Garden City, Long Island, N. Y., for duty, from Fort Oglethorpe, Lieut. ALOIS F. SEIFRIS, Mars.

To Hoboken, N. J., for duty, from Philadelphia, Major GEORGE M. DORRANCE, Philadelphia; Capt. THOMAS X. STELLWAGEN, Jr., Media; Lieut. JOHN W. BRANSFIELD, Philadelphia.

To Jefferson Barracks, Mo., for duty, from Fort Riley, Lieut. RUSSELL RICHARDSON, Philadelphia.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Capt. WILLIAM F. BEITSCH, New Brighton; Lieuts. LOGAN E. HULL, Altoona; PETER B. MULLIGAN, Hazelton; JOSEPH H. WYATT, Mahoney City; WILLIAM D. BAUN, JOSEPH W. POST, Philadelphia; WALTER A. MONNICH, Pittsburgh; CHARLES K. SHANOR, Sewickley; FRANCIS R. WISE, York.

To Rochester, Minn., for duty, and on completion *to his proper station,* Major GEORGE A. DE SCHWEINITZ, Philadelphia.

To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, from Camp Lee, Lieut. HERBERT F. KENNY, Pittsburgh.

To Washington, D. C., for duty in the Surgeon-General's Office, from Rockefeller Institute, Capt. JAMES H. AUSTIN, Ardmore. For duty, Lieut. WILLIAM H. CHANDLEE, Philadelphia.

To Williamsbridge, N. Y., for duty, Lieuts. WARREN T. O'HARA, New Kensington; JOSEPH C. YASKIN, Philadelphia.

To the inactive list, from Pittsburgh, Capt. WILLIAM C. MEANOR, Pittsburgh.

Honorably discharged, Lieut. CLYDE L. WILLIAMS, Harmonsburg. On account of physical disability existing prior to entrance into the service, Lieut. ADOLPH H. FRIEDMAN, Philadelphia.

Relieved from further active duty, Lieut. JAMES R. MARTIN, Philadelphia.

Rhode Island

To Lake Charles, La., Signal Corps Aviation School, from Fort Oglethorpe, Lieut. KENNETH CHURCHILL, Providence.

South Carolina

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. ALEXANDER S. BLANCHARD, Williston.

To Fort Riley for duty, from Fort Riley, Lieut. LEWIS F. ROBINSON, Pickens.

To Lake Charles, La., Signal Corps Aviation School, from Fort Oglethorpe, Lieut. LONNIE M. McMILLAN, Florence.

South Dakota

To Fort Riley for instruction, Capt. WILLIAM E. FEHLIMAN, Lead; Lieuts. DENNIS W. SULLIVAN, Britton; WILLIAM R. BALL, Mitchell; CLEVELAND F. BROOKS, Platte; PIERRE R. PINARD, Wagner.

Tennessee

To Camp Custer, Battle Creek, Mich., as a member of the board for the examination of the command for tuberculosis from Fort Oglethorpe, Lieut. ENOCH C. SEALE, Nashville.
To Camp Doniphan, Fort Sill, Okla., base hospital, from Fort Riley, Lieut. SALVADOR L. BOCCELLATO, Memphis.
To Camp Greene, Charlotte, N. C., base hospital, from St. Louis, Capt. BERNARD C. McMAHON, Memphis.
To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. HARRY L. LOTT, Knoxville.
To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. IRA J. TATUM, Gleason.
To Fort Dade, Fla., for duty, from Fort Oglethorpe, Lieut. GEORGE E. KERR, Chattanooga.
To Fort Oglethorpe for instruction, Lieut. JESSE A. JAMES, Nashville.
To Fort Riley for instruction, Lieut. GRANVILLE D. LEQUIRE, Rutledge.

Texas

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. ELMER W. JONES, Wellington; from Chicago, Lieut. FRANK G. SANDERS, Fort Worth.
To Camp Crane, Allentown, Pa., for duty, from Washington, Lieut. QUINCY B. LEE, Wichita Falls.
To Camp Hancock, Augusta, Ga., for duty, from Camp Hancock, Lieut. HOWARD L. FARQUHAR, West Brownville.
To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Southern Department, Capt. ARTHUR W. C. BERGFELD, Seguin.
To Camp MacArthur, Waco, Texas, base hospital, from Chicago, Capt. WILLIAM L. CROSTHWAIT, Waco.
To Camp McClellan, Anniston, Ala., for duty, from Fort Oglethorpe, Lieut. WILLIAM A. CHERNOSKY, Rosebud.
To Camp Sevier, Greenville, S. C., as orthopedic surgeon, from Camp Travis, Major CHARLES S. VENABLE, San Antonio.
To Camp Travis, San Antonio, Texas, base hospital, from Chicago, Capt. BERNARD F. SMITH, San Antonio.
To Fort Oglethorpe for instruction, Capts. ADDISON L. LINCECUM, Austin; SIDNEY J. FRANCIS, Luling; from St. Louis, Capt. IRA E. PRITCHETT, Houston. For instruction, Lieut. MILTON M. GLOVER, Wichita Falls; from Camp Hancock, Lieut. KNIGHT W. FIELD, Dallas; from Camp Pike, Lieut. CHARLES O. ADAMS, Longview; from San Antonio, Lieut. HALL SHANNON, Dallas.
To Fort Riley for instruction, from Fort Sill, Capt. FOSTER R. WINN, Alvin; from Camp Bowie, Lieut. JOHN R. LEWIS, Gainesville; from Camp Logan, Lieut. HENRY E. BAYLIS, Huntsville; from Camp MacArthur, Lieuts. SAM R. GRIFFIN, Canyon; WILLIAM E. CAMPBELL, Cedar Creek; SILAS G. CAIN, Haskell; WALTER PURVIANCE, Pampa; from Fort Sill, Lieut. OZRO W. CUNNINGHAM, Valley View.
To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. LYLE J. LOGUE, Houston.
To New Orleans, Charity Hospital, for instruction, and on completion *to Camp MacArthur,* Waco, Texas, base hospital, Capt. DAVID H. LAWRENCE, El Paso. On completion *to Camp Shelby,* Hattiesburg, Miss., base hospital, Lieut. GEORGE T. THOMAS, Amarillo.
To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieut. JAMIE D. STEPHENS, Temple.
To San Antonio, Texas, Kelly Field, from San Antonio, Lieut. EDWARD E. COLLINS, Premont.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. GEORGE W. HOWARD, Dallas; JAMES S. BUIE, Hillsboro; TALBERT M. HALL, Osage.
Resignation of Lieut. FRANCIS C. GREEN, Oglesby, accepted.

Utah

To Fort Riley for instruction, Capt. JOHN C. EVANS, Salt Lake City; Lieuts. JOSEPH E. DAY, Garland City; JOSEPH H. PECK, Gold Hill; THOMAS W. STEVENSON, Salt Lake City.
To Philadelphia, Pa., for orthopedic instruction, from Camp Travis, Lieut. DAVID K. ALLEN, Salt Lake City.

Virginia

To Camp Gordon, Atlanta, Ga., as assistant to the camp surgeon, from Camp Gordon, Major FREDERIC ELMER JENKINS, National Soldiers' Home.
To Camp Sevier, Greenville, S. C., base hospital, from Camp Sevier, Lieut. WILLIAM B. PORTER, Richmond.
To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. WADE C. PAYNE, Haymarket.
To Fort McHenry, Md., for duty, Lieut. ADRIAN VAN B. ORR, Chester.
To Fort Oglethorpe for instruction, from Camp Lee, Majors SAMUEL B. MOORE, Alexandria; ALLEN J. BLACK, Hollins; Lieut. ISAAC H. GOLDMAN, Richmond. For instruction, Lieut. WAVERLY S. TUCKER, Richmond; from St. Louis, Lieut. ELIJA M. HICKS, Roanoke.
To Fort Sam Houston, Texas, for temporary duty, Capt. JOHN M. LOVE, Norfolk.
To Rockefeller Institute for instruction in laboratory work, and on completion *to Army Medical School,* for duty, Lieut. JOHN E. WINE, Forestville.
Honorably discharged, Lieut. ALVAH RAMSEY, Burkesville.

Washington

To Camp Fremont, Palo Alto, Calif., base hospital, Lieut. CHARLES B. COWAN, Seattle.
To Camp Lewis, American Lake, Wash., base hospital, Lieut. HINTON D. JONES, Tacoma; from Camp Lewis, Lieut. CHARLES R. McCREERY, Tacoma.
To Fort Riley for instruction, from Camp Lewis, Capt. WILLIAM H. AXTELL, Bellingham; Lieut. JOSEPH S. SMEALL, Tacoma. For instruction, Lieut. CHARLES H. DEWITT, Jr., Tacoma.
To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Capt. FRANK L. WOOD, Lyden; from Portland, Ore., Lieut. FRANK A. BRYANT, Colfax.
To Seattle, Wash., University of Washington, for duty, and on completion *to Camp Fremont,* Palo Alto, Calif., base hospital, Major JAMES B. EAGLESON, Seattle.

West Virginia

To Camp Morrison, Va., for duty, from Pittsburgh, Lieut. RALPH H. BOICE, Sistersville.
To Los Angeles, Calif., Arcadia, for duty, from Los Angeles, Lieut. HARRY R. PARKER, Williamson.
Honorably discharged, on account of physical disability existing prior to entrance into the service, Capts. CALVIN M. KESSLER, Clarksburg; WILLIAM L. RAYL, Huntington; Lieut. NOAH E. STEELE, Omar.

Wisconsin

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Riley, Capt. VERNON ROBERTS, National Home.
To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. GEORGE R. REAY, LaCrosse.
To Camp Pike, Little Rock, Ark., to examine the troops for cardiovascular diseases, Capt. JAMES G. TAYLOR, Milwaukee.
To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Fort Riley,* base hospital, Capt. WILLIAM B. McCAULEY, Milwaukee. On completion *to Camp Grant,* Rockford, Ill., Lieut. EDMUND H. MENSING, Milwaukee.
To Fort Oglethorpe for instruction, from Fort Riley, Major EDWARD J. BARRETT, Sheboygan; from Chicago, Lieut. GEORGE H. SCHLESSELMAN, Fond du Lac.
To Fort Riley for instruction, Capts. ENOCH P. WEBB, Beaver Dam; BENJAMIN FOSSE, Beloit; HERMAN HENDRICKSON, Green Bay; GEORGE W. FIFIELD, Janesville; CHARLES R. LOCKWOOD, Kankakee; JOHN W. BIRD, Stevens Point; EUGENE GATES, Two Rivers; RICHARD E. DAVIES, Waukesha; Lieuts. FRANK C. WALCH, Black Creek; HAROLD KALLING, Black River Falls; WILLIAM H. BAYER, Gleason; RAYMOND N. NELSON, Horicon; ROBERT C. MONTGOMERY, Madison; EDWARD N. PFEFFER, Milwaukee; JOHN T. BROOKS, Minong; EDWIN RILEY, Park Falls; ROY F. BREEDEN, Richland Center; CLINTON C. FULLER, Stratford; CHARLES R. GOUGH, Wausau; DANIEL W. LYNCH, West Bend; JOSIAN A. POWLASS, West Depere.
To Milwaukee, Wis., to examine applicants for appointment to the Officers Reserve Corps, Major GEORGE V. I. BROWN, Milwaukee.
To New York City for orthopedic instruction, and on completion *to his proper station,* from Fort Riley, Major RALPH KAYSON, Plymouth.
Honorably discharged, Lieut. GEORGE D. SPENCER, Evansville.
Resignation of Capt. JOHN R. MINAHAN, Green Bay, accepted.

Wyoming

To Fort Riley for instruction, Capt. ARTHUR E. LANE, Laramie; Lieut. ALLAN M. GIDDINGS, Crosby.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Personal.—Dr. Cyrus T. Foster, city health commissioner of Rock Island, has been appointed commissioner of the sanitary district of Rock Island by the state board of health. Dr. Henry S. Bennett has been given a similar appointment in the Moline territory.——Dr. G. Gwin Taylor, Elkhart, has been made medical supervisor of sanitary military zones in Illinois, comprising the territory around the Rock Island Arsenal, Camp Grant, Rockford, the Great Lakes Training Station, Fort Sheridan, Scottfield, Belleville, and Chanute Fields, Rantoul.——Dr. G. Allen Lightle, Tallula, has been appointed resident medical officer of the Rock Island military district under the city board of health.

Miscellaneous.—The city authorities of Springfield , in response to a communication from Dr. C. St. Clair Drake, director of the state department of health, regarding the health organization of Springfield have agreed to take action looking to the establishment of a modern department of health, in accordance with a recommendation recently made in the report of a survey by the United States Health Service. The mayor and the commissioners of health have agreed, that if the tax levy for health purposes passes the spring election, the city will reorganize the health department, employ a full-time physician as health officer, appoint a bacteriologist and chemist, employ a full-time public health nurse, one sanitary and quarantine officer, two food and dairy inspectors and a superintendent of the isolation hospital, as well as competent help to look after the department of vital statistics.——At Mason City, March 12, Dr. Henry O. Rogier, county chairman of the Illinois Tuberculosis Association, which is a branch of the Red Cross, started a movement to organize the work of a tuberculosis commission and a number of committees were appointed to carry on the work. Dr. William H. Schuette, Mason City, has been appointed county advisor.

Chicago

Personal.—Dr. Edward K. Armstrong has been sent to France by the American Red Cross to engage in child welfare work among the civilian population.

To Address the Chemical Society.—Prof. E. V. McCollum of Johns Hopkins University, April 12, will address the

Chicago section of the American Chemical Society on "The Biological Analysis of Food."

Health Committees to be Appointed.—At a meeting of the Chicago Church Federation, March 8, action was taken to have appointed 1,000 health committees in a campaign against tuberculosis. About 2,000 sleeping porches will be built this spring, and citizens will be encouraged to sleep outdoors. The cooperation of the city health department and the Municipal Tuberculosis Sanitarium was promised in the movement.

Miscellaneous.—Suit to recover the property of the Chicago College of Medicine and Surgery, valued at $300,000, was filed, March 19, by Mrs. Neva A. Brown, widow of the late Henry B. Brown, a chief owner of the Valparaiso University. ——Under the direction of Dr. William N. Lipscomb, the first-aid car of the American Red Cross will be in Chicago during the week of April 15. Lectures will be given and classes conducted, showing modern methods of preventing railroad accidents and the administering of first aid to the injured.——At the meeting of the medical women of Illinois, March 27, an initial step was taken to raise $300,000 to equip a woman's hospital unit. Chicago's quota is $25,000, to be collected between March 26 and April 6. Dr. Clara P. Seippel was elected chairman of the finance committee. The object is to collect into one unit the women in the medical service abroad.

INDIANA

For New Hospital.—The county council at Winchester has appropriated $15,000 toward the erection of a new hospital. The county has a previous donation of $10,000 from Mrs. W. E. Miller and a lot on which to build.

Personal.—Dr. George H. McLin, Huntington, was brought home from St. Louis seriously ill. He had been traveling in the Southwest.——Dr. Andrew T. Custer, Linton, has resigned as coroner of Greene County and Dr. H. O. Woodrow has been made his successor.

Miscellaneous.—At South Bend the county council has appropriated $100,000 for the construction of new buildings for the county tuberculosis hospital.——At Decatur early in March, there were four deaths of patients from eating meat. After an investigation of the circumstances surrounding these deaths, it was decided that they were due to botulism.

For Selling Narcotics.—Dr. Benjamin F. Patton of Fontanet, formerly of Terre Haute, has been sentenced to prison for giving prescriptions for morphin. Dr. Patton was accustomed to visit a west end saloon in Terre Haute where many drug fiends gathered to get his prescriptions. He claimed he had sixty-eight patients, but the government fixed the number at 150.

New Indiana School of Medicine.—A $400,000 building for the Indiana School of Medicine is to be erected on a site just east of the Robert W. Long Hospital, Indianapolis. It is expected that the new building will be four or five stories high and built of pressed brick and stone, trimmed to harmonize with the hospital building. It is expected that $150,000 will be realized from the sale of the old building.

IOWA

Resolutions Adopted.—The Scott County Medical Society, March 5, adopted a series of resolutions calling attention to the greater prevalence of venereal disease among civilians than in the Army, and asking that future registrants for the Army be considered and dealt with in the light of an urgent war emergency and placed under military control with reference to venereal diseases. It was further resolved that delegates to the next meeting of the state medical association should be instructed to urge the state association to adopt similar resolutions.

Personal.—Dr. Mathew A. Tinley, Council Bluffs, now a lieutenant-colonel in France, has been awarded the French Cross of War.——Dr. Benjamin H. Chamberlain, Wyoming, has been made a member of the school board.——Dr. William S. Norton, Muscatine, was reelected to the board of education.——Dr. Edward S. Bowman, Davenport, county physician, has been removed from the office by the supervisors.——Dr. Ludwig F. Guldner, Davenport, was chosen physician for the baby welfare clinic to succeed Dr. Emil O. Ficke who has entered the Army medical service.

Miscellaneous.—Through the Waterloo Tuberculosis Clinic and Dispensary it has been ascertained that there are 600 active cases of tuberculosis in Waterloo.——At Davenport a free tuberculosis clinic was opened, March 20, in charge of Dr. Roscoe P. Carney and Sidney G. Hands as examining physicians, assisted by a tuberculosis nurse.——Two new wards in the base hospital at Camp Dodge were opened, March 18, making a total of twenty-four completed wards. There are 1,500 patients in the hospital.——A number of cases of typhoid fever occurring at Dubuque led to the appointment of a committee by the Dubuque County Medical Society. After an investigation, this committee reported that there was no epidemic or general cause for alarm, but suggested certain instructions to the people of the city in an effort to avoid further dissemination of the disease.——At a meeting of the Iowa Tuberculosis Association at Des Moines, March 4, Dr. Orville W. McMichael of Chicago, the principal speaker, said that more than 500 soldiers with tuberculosis have been returned to their homes from Fort Dodge, Camp Grant, and other cantonments.——At Grinnel more than $60,000 has been raised to establish a city hospital.——At Humboldt a company has been organized to establish a hospital in the building of the old Humboldt College.——At Fort Dodge, Webster County, physicians increased their rates for professional services 50 per cent.; the new rates became effective March 15.

KENTUCKY

Meningitis.—The number of cases of meningitis at Glasgow led Governor Stanley to take action, March 12, to prevent a serious epidemic. Members of the state board of health, including the state bacteriologist, were directed to attend to the situation, and an officer of the United States Public Health Service was detailed by the Surgeon-General at Washington to work with the state authorities.

Quarantine Rules Revised.—Quarantine rules for contagious diseases recently revised by the Louisville Health Department require children who have been excluded from school because of contagious diseases or exposure thereto to have a certificate from a physician stating that the rules of the department have been complied with. Children may not return to school after the expiration of the quarantine period unless they present the certificate required.

Sterilizing Laundry.—Installation of a sterilizing plant at the armory for the purpose of eliminating all danger of contagious disease being spread through the thousands of soldiers' shirts that are delivered there and which come from thousands of homes, has been recommended to Captain Hawkins, in charge of the substation of the government depot, by Major Fricks of the United States Public Health Service, City Health Officer Baker, his assistant, Dr. R. B. Norment, Jr., and Miss Mary K. Coady, supervising nurse of the board of tuberculosis hospital.

Health Board Reorganized.—By a bill put before both houses of the legislature at its present session, the state board of health has been given jurisdiction over the bureaus of tuberculosis, hotel inspection, food and drug inspection, and vital statistics. The new board will come into existence, June 21. For the present it has been decided that it will be inadvisable to remove the headquarters of the state board from Bowling Green. Both Frankfort and Lexington have been mentioned as locations for the new board. Dr. W. L. Heiser, of the tuberculosis commission, is slated to succeed Dr. Joseph N. McCormack, chief sanitary inspector and acting secretary of the board.

Suit on New Public Health Law.—It is the plan of the present state board of health to test the constitutionality of the recently enacted law which combines the various health activities in the state. It is claimed that the title "An Act Relating to Public Health" does not sufficiently cover the subject to include the abolishment and recreation of the state board of health. The suit will be brought to prevent the governor appointing the new board in June. The law provides that if one paragraph is found invalid or unconstitutional it does not affect the rest of the bill. If that portion of the bill in question is found invalid the new law will be administered by the present board as now constituted.

Personal.—Dr. Henry E. LeCates has resigned as head of the Blue Grass Tuberculosis Sanatorium at Lexington and will go to Minnesota as a member of the state advisory tuberculosis commission, with headquarters in St. Paul.——Drs. Henry E. Tuley, David C. Morton and George A. Hendon, physicians of Louisville, have been named as members of the tuberculosis corps of the Waverly Hill Sanatorium.——Dr. Orlan T. Hughes, Stamping Ground, was elected city physician at Lexington, to fill the vacancy caused by the death of Dr. Alexander C. Brown.——The many friends of Dr. S. G. Dabney will be pleased to learn of the favorable news from

his son, Lieut. William Dabney, who was wounded in an engagement in France. It is reported that he has been granted a short leave of absence and is recuperating in Nice, Italy.

MARYLAND

Personal.—Dr. George Y. Massenberg, Towson, who was with the American Red Cross in Roumania, has arrived at Moscow, Russia. He will go to France and continue to work for the Red Cross.

Mayor of Cumberland.—Dr. Thomas W. Koon was elected mayor of Cumberland for the third consecutive term at the election, March 19. Dr. Theodore A. K. Hummelshime was elected one of the four city commissioners to serve for two years. Cumberland has commission government.

Report on Pneumonia Cases.—The health department has issued a caution against contact with persons who have had pneumonia. During the past week the new cases totaled 186, compared with 152 the previous week, and 19 for the corresponding period of 1917. Sixty-one deaths from pneumonia were reported during the week.

A Special Bureau of Hygiene.—It has been recommended by Health Commissioner Blake of Baltimore, as a result of studies made by Dr. William T. Howard, Jr., assistant commissioner of health, that a bureau of child hygiene be established in the health department for the purpose of combating a high mortality rate among children.

MASSACHUSETTS

Cutter Lectures.—The Cutter lectures on preventive medicine and hygiene, were delivered by Elmer V. McCollum, professor of hygiene in the Johns Hopkins University, March 19, 20 and 21.

Officers Elected.—The annual meeting of the Massachusetts Association of Boards of Health was held at Boston, where Dr. John S. Hitchcock, Northampton, was elected president, and Dr. Francis G. Curtis, Newton, treasurer.

Medical Bequests.—By the will of Mrs. Charles H. Colburn, Milford, who died recently in Paris, a bequest of $20,000 was made to the Milford Hospital, and a fund of $100,000 to the Harvard Medical School for research in tuberculosis.

Woman Physician Honored.—Dr. Eveline C. DuBois, Springfield, sailed for France during the last week in March, to work close behind the lines in northeastern France under the auspices of the Secretariat Francais des Villages Liberes, a French-American organization, of which the legal head of the Lafayette family is the president of the committee on American relations. The Woman's Medical Society of Springfield gave a banquet in her honor and presented her with a jeweled flag pin.

Personal.—At the annual meeting of the associated boards of health of the Northeastern district of Massachusetts, Dr. George B. Fenwick, Chelsea, was elected president.——After ten years of work in Newfoundland and Labrador, Dr. John Mason Little, Jr., Boston, who was part of the time associated with Dr. Wilfred Grenfell, has returned to the states.——Dr. Eugene R. Kelley, Boston, has been appointed state commissioner of health to succeed Dr. Allan J. McLaughlin who has been called back into the federal public health service.——At the annual meeting of the Robert B. Brigham Hospital for Incurables, Dr. Joel E. Goldthwait, Boston, was reelected president and Dr. Francis H. Rowley, vice president.

Miscellaneous.—Eight John Harvard scholarships were awarded students of the Harvard Medical School in Boston. These scholarships are usually awarded to students who have shown excellence in their work but who do not necessarily need financial assistance.——Under the will of Rebecca A. Green, Harvard has received a donation of $10,000, $500 of which is for the purpose of founding a scholarship to be known as the John White Browne Scholarship for research in medicine.——A death from typhus fever was reported to the Boston Health Department, March 6. The patient came from Chelsea, and after several days' illness was sent to a Boston hospital where he died. The case was diagnosed by Dr. Andrew W. Sellards, Dedham, who was a member of the unit sent to Serbia to combat typhus early in the war.

MICHIGAN

Personal.—Dr. D. B. Hagerman, Ann Arbor, has been appointed local surgeon for the Michigan Central Railroad.——Dr. Robert G. Marriner, Menominee, was seriously injured, March 7.

Miscellaneous.—Active cooperation between the military medical officers and the state authorities has resulted in the reporting of 2,000 cases of communicable diseases to the state board of health during the period from September, 1917, to March, 1918. Many of these were cases of venereal disease, and the patients were sent to hospitals to undergo treatment. Free clinics are held in Battle Creek, as well as in Detroit and other cities throughout the state.——In Detroit venereal diseases have been made reportable and power has been given the health officer to isolate persons afflicted with them. Drs. Francis Duffield, Detroit, was elected president, and Charles C. Drake, vice president of the board of health.——After some experiences with the soldiers at Camp Taylor, Dr. Edwin R. Vander Slice, Ann Arbor, secretary of the Michigan Antituberculosis Association has returned to Ann Arbor convinced that what Michigan needs in the fight against tuberculosis is more sanatoriums, as provided for by the joint county sanatorium law passed by the last legislature. The efforts of the Michigan association for the next year will be directed toward securing city sanatoriums. The medical officers at Camp Custer have recommended a detention camp housing 2,000 men, to be composed of 250 huts, each capable of housing a squad of eight men, the whole to be enclosed with an area large enough for drill purposes. On arriving at the camp, selected men will be placed in this isolation camp.

MINNESOTA

Personal.—Dr. Jennings C. Litzenberg of the University of Minnesota has been delivering a course of lectures on sex and social hygiene, to the soldiers at Fort Snelling. The course is to continue throughout April.——Dr. Roy A. Schnacke, St. Paul, has resigned as police surgeon.——Dr. William M. Sweeney, Red Wing, had the misfortune to break his leg, early in March.

Miscellaneous.—At a public meeting in St. Paul, March 15, plans for a campaign against tuberculosis were made. The meeting was addressed by a number of the leading experts on tuberculosis in the city and state. The establishment of a tuberculosis fellowship at the University of Minnesota was proposed.——In a list of more than fifty cities St. Paul stood fourth in excellence of health conditions as reported to the Department of Commerce of the federal government in March. At Minneapolis it was reported, March 16, that there were 7,000 cases of tuberculosis in the city, over 5,000 of which were not under supervision.——At Hibbing, citizens and local authorities are cooperating with the state board of health in a campaign against quack doctors. Literature is being distributed to offset the advertising of the quacks.

MISSOURI

To Head Sanatorium.—Dr. William R. Summers, until recently assistant physician at State Hospital No. 3, Nevada, has purchased the Johnson Sanitarium at Springfield which was established by the late Dr. Samuel A. Johnson, Springfield, for the treatment of mental and nervous diseases. Dr. Johnson was killed on Nov. 26, 1917, by one of his patients who struck him on the head with an ax.

Miscellaneous.—Early in March, meningitis was slightly on the increase and an expert was employed for sixty days to help cope with the situation, on the recommendation of Dr. Eugene Carbaugh, city health commissioner.——Under the new hospital and health board, the appropriation for the salary of Dr. E. H. Trowbridge, chief school medical inspector, was cut off, and the work will be continued until June 1 under the direction of the board of education, as a private citizen has agreed to pay the salary of the chief inspector.

Personal.—Dr. W. L. Whittington, formerly superintendent of the state hospital at St. Joseph, has removed to Eldridge, Calif., where he has been made assistant superintendent of the state home for the feebleminded.——Dr. and Mrs. W. B. LaForce, St. Joseph, left, February 1, for Peking, China, where the doctor has been appointed a member of the faculty of the American Indemnity College as physician in charge.——The state board of health has elected the following members: president, Dr. W. J. Ferguson, Sedalia; vice president, Dr. W. A. Clark, Jefferson City; secretary, Dr. George H. Jones, Jefferson City.

Social Work Conference.—Social service, made necessary because of war conditions and the reconstruction work that must be taken up in every community at the close of the war, will be the principal subjects considered at the forty-fifth National Conference of Social Work to be held in Kansas City,

May 15 to 22. Raymond Robins, in charge of Red Cross work in Russia; Ernest P. Bicknell, director-general of the Red Cross work in the United States, and Homer W. Folks, in charge of the department of civil affairs of the Red Cross in France, have important places on the program. Among the women speakers will be Mrs. Florence Kelley, who is one of a committee of three asked by the government to inspect factories where soldiers' uniforms are made and to see that none are made in sweatshops, and Maude E. Minor, the only woman member of the New York State Probation Commission, and chairman of the War Department Committee on the Protection of Girls.

NEW MEXICO

Personal.—Dr. William R. Tipton has been made superintendent of the New Mexico Hospital for the Insane at East Las Vegas. Dr. Tipton was formerly medical director of the institution.——Dr. Samuel J. Crumbine, Topeka, secretary of the state board of health of Kansas, addressed the Kiwanis Club at Albuquerque on the subject of health conditions in New Mexico. He referred to the fact that there was no state department of public health in New Mexico. Dr. Crumbine's visit to New Mexico was in the interest of the enforcement of regulations regarding venereal and other communicable diseases.

For a Public Health Department.—The New Mexico Public Health Association, an organization with headquarters at Albuquerque, is making vigorous efforts to have the state authorities establish a state board of health, as well as to secure legislation for the improvement of health conditions throughout the state. The president of the association is Nathan Jaffa, Roswell. The secretary of the association has been in correspondence with the officers of national associations with reference to the study and prevention of tuberculosis, especially as it affects states like New Mexico, to which many persons with tuberculosis migrate. A new health law has been introduced into the New Mexico legislature, which, it is stated, is based on that of Indiana.

NEW YORK

Hearing on Health Insurance Bill.—A hearing was held on Senator Courtland Nicholl's health insurance bill, March 26. The bill has the unanimous endorsement of the New York State Federation of Labor, the Women's Municipal League, the Women's Trade Union League, and the Consumer's League of New York.

Personal.—Dr. Elliott T. Bush, Horseheads, has been appointed superintendent of the Chemung County Tuberculosis Hospital at Elmira. Dr. LaRue Colegrove, Elmira, has been made a member of the hospital commission.——Dr. Virgil D. Selleck has been appointed full-time health officer of Glens Falls.——Dr. Oliver W. H. Mitchell has resigned as head of the city laboratories at Syracuse. Dr. Augustus J. Gigger, formerly bacteriologist for the Rhode Island State Department of Health, has been named as his successor.

Physician Sentenced.—An authentic report states that, Jan. 10, 1918, in the United States District Court for the southern district of New York, Dr. William Llewellyn Owen was indicted on four counts and sentenced to one year on each indictment in the federal prison at Atlanta, Ga., the sentences to run concurrently. Reports state that Owen had been conducting a thriving business in the sale of various colored pills, the "miraculous powers" of which had been set forth in pamphlets circulated through the United States mails. The pills were "guaranteed to cure" all human ailments.

Better Facilities for Insane Urged.—On the recommendation of the Hospital Development Commission, the board of managers of the New York State Charities Aid Association has adopted resolutions urging more adequate facilities for the care of the insane and the feebleminded in this state. There are now two bills before the legislature providing for two new state hospitals for the insane in the metropolitan district. The measures also provide for a new state board to handle the problem of the feebleminded. The appropriation bill before the legislature calls for a total of about $2,500,000 in authorizations and appropriations to construct new buildings for the accommodation of the insane and the feebleminded.

Miscellaneous.—The Albany County Medical Society and other societies have expressed their opposition to the law making the regulations concerning narcotic drugs more stringent.——Utica has made a thorough reorganization of the city health department with new employees.——Dr. Geza Kremer for several years with the department of health of New York has been placed in charge of the Sea View Hospital and Sanitarium at Castleton Corners.——At Troy a full-time public health nurse has been employed.——A bill in the state legislature to license chiropractors is being opposed by representatives of the state department of health and the educational and medical professions throughout the state. Dr. Augustus M. Downing, deputy commissioner of education, contends that the bill is absolutely at variance with the present method of state control of similar professions, since it would take from the board of regents the power of decision in admitting candidates to practice.——The Whitney bill in the legislature, which would abolish all local boards of health, replacing them with county boards and giving complete control to the state board of health, met with so much opposition from local health authorities throughout the state that it has been withdrawn.——Strong opposition has developed to bills introduced into the New York state legislature, which if they became laws would remove all obligation on the part of rural communities to carry out physical training and health inspection. The present physical training law requires that children of 8 years or over in elementary and secondary schools should receive systematic physical training and health inspection. Among the opponents of these measures were Dr. Thomas D. Wood, professor of physical education at Columbia University, and Dr. Eugene Lyman Fiske of the Life Extension Institute, who claim that children in the rural districts need physical training and inspection more than those in the city.

New York City

Charitable Bequests.—To Harvard University for the creation of two scholarships in the medical school, $5,000, by the will of Mrs. Elizabeth C. Franham.

Gifts Wanted for Columbia War Hospital.—Base Hospital No. 1, the Columbia War Hospital, announces that it is now caring for 600 men from overseas and from the various cantonments in this country and that certain gifts will be acceptable. Among the articles particularly desired are the following: talking machines, with records; bookcases and books, games, wicker chairs, playing cards, tobacco, jellies, jams and fruits.

Personal.—Dr. Seth M. Milliken has been appointed assistant attending physician to the Roosevelt Hospital, to take the place of Dr. Kirby Dwight, who has entered military service.——Major Grayson M. P. Murphy, former head of the American Red Cross Commission in Europe, has been awarded the first Liberty Service Medal, recently created by the American Social Science Association for the recognition of notable humanitarian and patriotic services for national welfare.

Fund for Women's War Work.—March 26, the American Women's Hospitals, organized by the war service committee of the Medical Women's National Association, inaugurated a campaign to raise funds for establishing in the allied countries hospitals and clinics to be conducted entirely by American women physicians and surgeons. A woman physician in every state has been appointed by the committee to organize her colleagues for future service abroad and for immediate service in the campaign.

Resolutions Regarding Occupational Diseases.—The executive committee of the Associated Outpatient's Clinics of New York City recently adopted resolutions, in consonance with those of other medical bodies, emphasizing the desirability of the early recognition of the diseases of industrial occupation, and the necessity for detailed records of all patients, as to occupation, etc. The resolutions urge that adequate facilities be provided for the treatment of occupational diseases and industrial poisonings, and that the study of occupational diseases be stimulated among the physicians connected with dispensaries.

Miscellaneous.—The sum of $8,000 has been given by citizens to erect a building at the People's Hospital on the east side to treat children with physical defects and to conduct a campaign of hygiene.——The United States government has taken over the old Hudson Street Hospital at 67 Hudson Street, to be put into the military service.——A bill in the New York legislature provides for the establishment of a special health department and organization for Brooklyn.——A course of lectures on food and food conservation as related to the war will be given at the College of the City of New York under the direction of Dr. Charles Baskerville, professor of chemistry. The courses are open to all who are interested.

American Women Physicians Give Hospital to Serbia.—The American Women's Hospitals, of which Dr. Rosalie Slaughter Morton is chairman, in response to an official request, announces that the institution will establish a hospital in Serbia which will contain about 250 beds. This organization has already fifty workers in the war zone and has sent a motor laboratory and two ambulances to Serbia. The American Women's Hospitals is also planning to establish a chain of clinics and dispensaries throughout France and Italy manned entirely by women surgeons and laboratory assistants. Since March 25, this organization has been carrying on a campaign to raise funds for the purpose. It has organized a committee with subcommittees, whose members are conducting the campaign in each state. Fifty American women physicians are now working in France.

New York Hospitals Preparing for Soldiers.—A hearing was held, March 25, by the committee on hospital and medical facilities of the mayor's committee on national defense for the purpose of planning coordination of medical facilities in this city for the care of sick and wounded military men arriving from overseas. Dr. Sigismund S. Goldwater presided. Representatives of the United States Navy, the board of education, the immigration department, the New York State Charities Aid Association, the American Motor Car Service, the police department, the Red Cross, private hospitals and kindred institutions were present. It was pointed out that there are now numerous patients from the Navy in the public and private hospitals of this city. As a result of the conference, the state board of charities will at once order a survey of the hospital facilities of both the city and the state with the view of ascertaining their availability for military use. In all cases in which expansion of public or private hospitals is found necessary, it is the intention to make the extensions permanent. Health Commissioner Amster favored an amalgamation of the field nursing forces of the department of health with the units under the direction of the Red Cross. The Red Cross has already made preparations to meet the demands that may be made on it as a result of any great increase in the wounded military population of the city.

New York Academy of Medicine Adopts Resolutions on Occupational Diseases.—At a meeting of the New York Academy of Medicine held, March 7, 1918, resolutions in regard to the industrial disease problem were adopted urging that the authorities of medical schools be notified of the necessity of instruction in the the treatment and prevention of occupational diseases, particularly with reference to the poisonous substances used in war and other industries. It was urged that clinics be established both in New York and in the neighboring towns where there are munitions and other manufacturing plants, so that these diseases may be studied and treated in a competent manner and both employers and employees may enjoy the benefits of this knowledge and receive instructions concerning the nature of industrial hazards and how to avoid them. Large hospitals and dispensaries were urged to record accurate data concerning patients suffering from industrial diseases and to provide adequate means for their treatment. It was also urged that the importance of the early recognition of and the necessity of promptly reporting these cases be brought to the attention of practitioners, and that means be provided to extend the excellent work done by the division of industrial hygiene in the bureau of preventable diseases, of the New York City Health Department. In the resolutions, the medical press was requested to give more space to the discussion of industrial diseases, and finally, the federal government, in the interest of the conservation of health and efficiency, was requested to cooperate, through its corps of P. H. S. experts, in the supervision of conditions in factories producing war munitions and allied products.

NORTH CAROLINA

Miscellaneous.—Dr. Benjamin E. Washburn, Raleigh, in charge of county health work reports that 6,000 people at seventy-five different places heard lectures on health conditions, and that 277 hookworm patients were treated during February. Nine counties have health departments which are cooperating with the state board of health in educational, sanitary and quarantine work, the physical examination of schoolchildren, vaccinations, etc.——Arrangements have been made for free nursing service for those who are unable to pay. Two nurses have been provided.

OHIO

Fire at Milford Center.—Fire at Milford Center, March 5, destroyed a large building owned by Dr. John L. Boylan, Marysville.

State Meeting Postponed.—Because of war conditions, it has been decided by the council to postpone until October 1-3, the seventy-first annual meeting of the Ohio State Medical Association, which was to have been held in Columbus in May.

Toledo Unit in Service.—The Toledo unit, comprising the staff of the U. S. Hospital Ship *Mercy* is in active service with the Atlantic fleet. The personnel of the staff includes Surgs. Charles W. Moots and P. Bruce Brockway, and Asst. Surgs. Robert H. Butler, Bellefontaine, Marsh Dolloway and Thomas Ramsey.

Personal.—Dr. William B. Quinn, Springfield, has been placed in charge of the obstetrical department of the Springfield City Hospital, succeeding Dr. Clarence S. Ramsey, resigned.——Dr. William H. Burns, Alliance, who has been under treatment for several weeks at the sanatorium in Bluefields, W. Va., has returned home convalescent.——Dr. Ralph W. E. Cole, city epidemiologist of Akron, has resigned to become chief of the division of communicable diseases, public health, education, and vital statistics in the state health department of West Virginia.——Dr. Clayton W. Russell, Springfield, who has been under treatment at the Springfield City Hospital has returned home much improved.——Dr. Stephen U. Sivon, Ravenna, has been appointed district surgeon for the Baltimore and Ohio system.——Dr. Fernand J. Leblicq, has been appointed city physician of Sandusky to succeed Dr. John S. McClelland, who disappeared two months ago.——Dr. Chester W. Waggoner has been made city health officer of Toledo.——Dr. Oscar H. Sellenings, Columbus, who left for France several months ago is now connected with the children's bureau of the American Red Cross, Paris.——Dr. George W. Miller has been elected president of the Dayton Antituberculosis Society.

Cincinnati

Old Medical Building for Soldiers.—The old McMicken Hall has been turned over to the War Department for the housing of soldiers who are taking courses of instruction in the University of Cincinnati.

Personal.—Dr. Max C. Labermeier has been appointed temporary district physician suceeding Dr. John J. Schwartz, who resigned to enter the military service.——Dr. Adam W. Montague has been appointed receiving physician at the General Hospital.——Dr. Vera V. Norton has passed the examination for resident physician at the municipal tuberculosis sanatorium.

New Clinics.—A special medical clinic is to be established at the Cincinnati General Hospital by the medical committee for Dr. Charles L. Bonifield. This is in addition to the clinic in charge of Dr. John M. Withrow. An outdoor clinic for malignant disease is to be inaugurated at the hospital. In a plea before the board of health, March 13, Surg. Paul Preble of the United States Public Health Service, urged the establishment of a clinic to aid in the stamping out of venereal disease in the military zone in which Cincinnati is included.

Medical College Dedicated.—The new buildings of the Ohio-Miami Medical College of the University of Cincinnati were formally dedicated, March 25. Gifts of $25,000 were announced. Pres. Charles W. Dabney of the university, in his opening address, paid eloquent tribute to Dr. C. R. Holmes by whose untiring efforts these magnificent buildings were added to the university. Addresses were also made by Dr. Henry S. Pritchett of the Carnegie Foundation, Dr. Joseph Ransohoff and others. Mr. Rufus B. Smith, on the behalf of the directors, accepted the building. The chief donors were Mrs. Mary M. Emery, who gave $300,000 for the building, Dr. Benjamin K. Rachford, who gave $125,000 for the endowment of a chair of pathology, Mr. and Mrs. Charles P. Taft, Mrs. Charles Fleischmann, Col. William Cooper Proctor, Harry H. Levy, Mrs. W. T. Semple, Mrs. Christian R. Holmes, Mrs. Julian Benjamin, Miss Mary Hanna, Mrs. Emilie Heine and James P. Orr. The grand total of subscriptions was $555,000. There still remains $75,000 to be raised to free the buildings from debt.

OKLAHOMA

Personal.—Dr. Robert J. Gauldin, Oklahoma City, has resigned as a member of the city board of health. Dr. Hil-

brand J. Hards, city health officer, has also handed his resignation to the mayor.

Miscellaneous.—In February at a conference between the governor, the state health officers and members of the faculty of the university and other organizations, a program for social hygiene was adopted. Governor Williams spoke of his intention of issuing a proclamation setting aside a "Hygiene Sunday," in starting the campaign.——The state board of health has issued a book of rules and regulations in regard to health matters which are to be distributed to all health officers of the state and to physicians and others who may desire it.——A tuberculosis dispensary was opened, March 12, at Oklahoma City, in charge of a public health nurse. A tuberculosis survey of the city is under consideration. Dr. Lewis J. Moorman, Oklahoma City, is to be director of the dispensary.——The commissioner of public safety at Oklahoma City has protested against the practice of small towns adjacent to Oklahoma City in sending smallpox cases to be cared for at city expense. There were eighty-four cases of smallpox in February, and ten new cases had been reported up to March 5.——At a conference of the inspectors of the state board of health under Dr. John W. Duke, Guthrie, in an effort to suppress smallpox it was decided that the state is to be divided into districts and an inspector assigned to each. Where conditions warrant, vaccination will be required of every one, and free vaccine will be distributed for the purpose.——At Muskogee, March 6, a health survey was begun.

PENNSYLVANIA

Philadelphia

Charitable Bequest.—A bequest of $1,000 to the maternity hospital of St. Vincent's is contained in the will of the late James McHugh.

Rush Hospital Fund.—The twenty-five teams of men and women engaged in a ten-day campaign to obtain $150,000 for the Rush Hospital for consumption and allied diseases, reported $25,500 as a result of the first four days.

Neurologists Needed for Service.—An urgent appeal has been received from Dr. Charles L. Dana, chairman of the National Committee for Mental Hygiene, requesting the services of neurologists and psychiatrists for the medical department of the Army without delay. Men of maturity and standing are needed for these positions.

Plans for Mosquito Campaign.—A conference was held at the Academy of Natural Sciences, March 29, in which were discussed details of a campaign begun by the federal, state and city governments, and by industrial establishments to exterminate mosquitoes in South Philadelphia and Delaware County. Dr. Benjamin F. Royer, acting state commissioner of health, presided as the commonwealth's representative and the city was represented by Dr. Andrew A. Cairns, acting chief of the bureau of health.

Smallpox Quarantine.—More than 5,000 persons, most of them colored, were vaccinated, March 27, in two city blocks after three cases of smallpox had been discovered within the area. The blocks under quarantine are from Tenth to Eleventh and from Pine to South streets, including several small thoroughfares. The quarantine was put in force at 6 o'clock in the morning by a detail of police and 100 physicians under Dr. Henry A. Strecker aroused the residents and vaccinated them. Few offered resistance. One of the patients was found to be a sailor who is believed to have contracted the disease in a southern port and brought it to this city.

Personal.—Dr. Alice Weld Tallant, professor of obstetrics at the Women's Medical College of Pennsylvania, read a paper on "Civilian Relief Work in France" before a special meeting of the Medical Society of the Women's Hospital of Philadelphia, March 25. Dr. Tallant has recently returned from the war zone where she was connected with the Smith College Reconstruction Unit in France.——Dr. David G. Metheny of the Jefferson Medical College has been elected professor of anatomy in the medical department of Baylor University, Dallas, Texas.——Dr. Charles H. Frazier, head of the hospital unit known as the Government Head Surgery Hospital No. 11, which is equipped with 1,000 beds, has tendered his resignation to Dr. Wilmer Krusen, director of public health and charities as consulting head surgeon of the Philadelphia General Hospital in order to hold himself in readiness for service with his unit.

Medical Notes.—A joint medical meeting of the Jewish Hospital Clinical Society and the Mount Sinai Hospital Clinical Society was held at the Mercantile Club, Tuesday evening, March 26. Dr. John B. Deaver was the speaker of the evening and the meeting was followed by supper.——The Pathological Society of Philadelphia tendered a luncheon, March 29, to the American Association of Pathologists and Bacteriologists, the American and Canadian sections of the International Association of Medical Museums, the American Association of Immunologists, and the American Association for Cancer Research.——The meeting of the Philadelphia Pediatric Society and the Babies' Welfare Association will be held on Friday, April 5, at the Academy of Natural Sciences, and will be given over to the consideration of the reduction of infant mortality. The speakers will be Miss Julia Lathrop, chief of the federal children's bureau; Dr. Jessica Piexotto, of the Council of National Defense, and Dr. Richard M. Pearce of the American Red Cross. Motion pictures will show the work now being done in France.

CANADA

Canadian Tuberculous Soldiers.—Up to Dec. 31, 1917, the Canadian Hospitals Commission had cared for 2,871 tuberculous soldiers. Of that number 1,983 had been overseas, and 888 had been sent from Canadian training camps. The number of patients who had been discharged or who had died up to that date was 1,466. Of those, 803 had been overseas and 663 had not been out of Canada. Of those under treatment, December 31, 1,180 had been overseas and 225 were camp patients, making a total of 1,405 at that time.

Canadian Amputation Cases.—January 15, when complete records were available, 1,051 Canadian soldiers on whom amputations had been performed had been returned to Canada. Of that number 266 had been discharged. A classification of the amputation cases shows that 328 men have lost arms. Of these 111 have been discharged. The total number of patients who had legs amputated is 723, of whom 568 are still in the hospitals in Canada. Of the men still in hospitals, 73 lost arms below the elbow and 144 above that joint. Of the men still in hospitals who lost legs, there were 194 who had amputations performed below the knee and 374 above.

Hospital News.—It has been decided to erect in Alberta, near Calgary, a new military hospital with a capacity of 300 beds, which may be enlarged to one with a capacity of 600 to 900 beds.——Additional ward space and facilities for treatment are being provided at the military hospital in Vancouver, B. C. This will give 150 more beds.——The Manitoba Military Convalescent Hospital, Winnipeg, is to be enlarged to a 1,000 bed institution.——The capacity of the Esquimalt Military Hospital, B. C., is to be expanded from 110 beds to 300 beds.——The total accommodation of the military hospitals of Canada in contemplation is 20,366. The exact accommodation at present is 12,291, and in addition the discharge depot accommodation amounts to 2,300.——It is said that there are 20,000 wounded Canadian soldiers in England awaiting transportation to Canada. This large number will tax the accommodation of the Canadian military hospitals.

Personal.—Dr. Alfred A. Thompson, M.P., Ridgeway, who has been medical superintendent of the military hospitals of Canada, is planning to resign, as the military hospitals commission is now replaced by a civilian organization, a fact which precludes his occupancy of the position and that of member of parliament at the same time.——Dr. Harry J. Watson, Winnipeg, Manit., who has been overseas for two years as a captain in the C. A. M. C., and resigned from the Canadian army medical service, has been appointed major in the Medical Reserve Corps of the United States Army, and has left to assume his new duties. Major Watson at one time practiced in Ottumwa, Iowa, and was three years in the Philippines with the United States forces.——Major Thomas D. Archibald, Toronto, who saw service overseas, but has been commanding officer at the military hospital at Whitby, has been given command of several military hospitals in Toronto.——Lieut.-Col. D. King Smith, Toronto, who was overseas with the University of Toronto Base Hospital, served for some months in Halifax, but has now been given command of the North Toronto Military Hospital.——Col. Alexander Primrose, Toronto, who has returned to Canada from England, where he was consulting surgeon to the C.E.F., has been appointed to the command of the military section of the Toronto General Hospital, which has apportioned over 200 beds for returned soldiers.——Major Howard Lester Harris, M.B., has been invalided to England from Saloniki. He was studying in Austria when war began. Before that he was practicing in Kamloops, B. C., and

enlisted at Victoria.——Dr. Wilfred T. Grenfell, C.M.G., the Labrador medical missionary, was in Toronto when he was attacked by laryngitis and ordered south by his physician. Latest advices state he has fully recovered.——Dr. Charles J. C. O. Hastings, M.O.H., Toronto, has been elected president of the American Public Health Association.——Major Gilbert Royce, Toronto, who went overseas three years ago with the University of Toronto Base Hospital, has been made a lieutenant-colonel and given command of a hospital at Bromley, England.——Dr. Percy W. Barker, Stratford, Ont., who has been in France two years, is home on leave of absence, having suffered from trench fever.——Dr. William Goldie, Toronto, will go overseas shortly for service in some of the hospitals of England.——Major Sydney S. Burnham, Toronto, who has been the recipient of the Distinguished Service Order, has been gazetted a general staff officer of the third grade. He is a son of Dr. Howard H. Burnham, Toronto.

GENERAL

The Pacific Medical College.—A letter from Dr. Charles B. Pinkham, secretary of the California State Board of Medical Examiners, states that the Pacific Medical College, Los Angeles, Calif., has never received recognition nor been approved by the California Board of Medical Examiners, that he has been informed recently that diplomas have been issued granting a degree without a requirement of specific attendance, and that a number of state boards have admitted the holders of such diplomas to examination. He asks that this information be disseminated among the state boards of the United States, since they may not have carefully investigated the record of the institution. He says that, as a result of the California board's investigation, an attorney representing the college has advised him that immediate steps are being taken to disincorporate the institution.

FOREIGN

Ichthyol Now Produced in Italy.—It has been found that the bituminous schist in the Vallepiana district in Italy yields a high grade ichthyol, equal to the best hitherto imported from Austria.

Chair of Phthisiology at Edinburgh University.—The first incumbent of the newly founded chair of phthisiology at the University of Edinburgh is Sir Robert W. Philip, professor of clinical medicine, said to be the founder of the first anti-tuberculosis dispensary.

Fatal Gas Gangrene.—Two Italian surgeons have recently succumbed to infection acquired while operating on wounded with gas gangrene. The victims are Drs. L. di Murro and G. Sica, both of whom had been long at the front. The gas gangrene developed a few days after the infection, but there were several weeks between the two tragedies.

Exchange of Prisoners Between Italy and Austria.—The twelfth interchange of sick and disabled war prisoners recently repatriated thirty-seven Italian officers and 303 privates, but the *Policlinico* remarks that there can be no question of reciprocity, as the condition of the Austrian prisoners in Italy is so much better than that of the Italian prisoners in Austria that it is by no means an even exchange.

Italian University to be Founded in Switzerland.—The *Riforma Medica* states that Switzerland has four universities at which French is spoken and three at which German is spoken, but there is none in the Italian speaking part of the country. By a recent legacy to the canton of Ticino, and gifts from other Italians, the funds have been provided to found an Italian speaking university and steps have already been taken for its realization at Ticino.

Campaign Against Venereal Diseases.—According to a statement of Mr. Hayes Fisher, president of the Local Government Board in England, a good start has been made in the campaign against venereal diseases. In fifteen months since the regulations were issued, 135 out of 145 county and borough councils have submitted schemes, of which 112 have been approved and 111 have been actually administered. During the nine months extending to the end of September, 1917, 12,000 hitherto unknown patients were treated in the London center alone, and it was calculated that by the end of the year 1917, 16,000 would have been cared for. Manchester has established centers in all its hospitals, twenty clinics for outpatients, and a laboratory in connection with the university, where good work is being done. A circular is to be issued recommending more lying-in homes, particularly for sufferers from the disease, 75 per cent. of the expense of which is to be borne by the government.

LONDON LETTER

London, March 5, 1918.

The National Physique

In the first of a series of lectures on "Problems in British Anthropology" at the Royal Institution, Prof. Arthur Keith said that the problem of physical deterioration is an old one. When our troops returned from the South African War it was raised by the late Gen. Sir Frederick Maurice, because he found that of every five men who offered themselves as recruits, three had to be rejected because they were found physically unfit for service. Sir William Taylor, director-general of the Army Medical Service at the time, reported that of 679,703 recruits examined between 1893 and 1902, only 424,651 men were passed as fit for service by the army medical officers, while 255,022 were rejected. An army of over a quarter of a million had thus to be cast aside because it was below the military standard of the time. The consequence was that in 1903 the government of the day appointed an interdepartmental committee to inquire whether there was any clear evidence of deterioration of the national physique. That committee in 1904 recommended a systematic investigation of representive sections of the nation so as to ascertain whether or not our bodies are changing or deteriorating under modern conditions. The report was duly piegonholed, and there lies to this day covered by the dust of fourteen years. The victorious manner in which our national armies have come through conditions more severe and more trying than any to which armies of former times were ever subjected seems to allay any fear that we are not equal to our forefathers in either vigor of body or strength of will. But every country in Europe has its contingent of men unfit to bear arms and unfit for the physical brunt of civil life. Before the war Germany had to reject 16 per cent. of her young men, because bodily weakness or deformity rendered them useless as soldiers. We also have our share of the unfit; the size of that share is the index of our physical deterioration as a nation. Under present conditions the need for a physical survey of the people, instead of being merely a matter of theoretical importance, as it was at a former time, has become a matter of urgent, practical importance. The total number of our population is not the most important matter for us at present: it is the number of our fit men and women, boys and girls, that matters. The medical examinations instituted by the Ministry of National Service really constitute a physical census of our man power. Our schoolchildren also are being surveyed. Ten years ago it was wisely ordained that the board of education should carry out a medical examination of boys and girls attending schools. The need for an anthropometric survey has been urged for the past sixteen years by fellows of the Royal Anthropological Institute and has the unanimous support of all scientific men. The Conjoint Board of Scientific Societies, set up by the learned bodies and corporations of this country to place the resources of science at the disposal of the government, appointed a strong committee to prepare a scheme of survey. This committee is of the opinion that such a survey is a matter of national importance and that it can be carried out by machinery already in existence. All that is now necessary is to set up an advisory council to coordinate the work carried on by the various government departments and a bureau to deal with the statistics as they are collected.

Modern Changes in the Human Face

In his second lecture on "Problems of Human Anthropology," Prof. Arthur Keith described the discovery of the remains of a boy in Suffolk of the period which closed about 4,000 years ago, and of the skeleton of an old man who had suffered from rheumatism, dating back 3,000 years, which had been unearthed while the foundations of a flying school in the west of England were being laid. Such bones, he said, are really documents, and enable us to discover the changes that have since taken place. The face has undergone several alterations. He had taken the skulls of twenty-five men and twenty-five women of the pre-Roman period in the Royal College of Surgeons and compared them with the same number of men and women who had died in London about the end of the eighteenth century. In the modern skull the orbit is bigger; the floor seems to have sunk; the cheek bone is smaller and has been pulled backward; and the supra-orbital ridge is less pronounced. The nose has become longer, narrower and more prominent. There is also in modern skulls a marked tendency to lay down a bony "sill" at the entrance

to the nose so as to narrow it. Modern palates are longer and narrower, and the teeth are arranged to form a pointed instead of a rounded arch. In regard to the lower jaw, he said that the tendency is to smooth away the sharp angle and to make the hinder border run into the lower border, while the chin is growing larger. In the ancient skull the incisors met edge to edge, but he doubted if 3 per cent. of modern persons have the old bite; though if we had to return to the method of living of four or five thousand years ago, our bones would probably go back to the ancient shape. The masseter muscle is growing less, but the temporal muscle, whose function is to crush food between the molar teeth, is increasing in size, because our modern tendency is to do hard chewing with the back teeth.

Vital Statistics in 1916

The registrar-general's return of vital statistics for 1916 in England and Wales has just been published. It shows a reduction of 4.5 in the marriage rate as compared with that for 1915 (when it was exceptionally high), and the lowest death rate of children under the age of 1 year ever recorded. The difficulties of framing estimates of population owing to the war have become so formidable that it is no longer possible to put forward figures otherwise than as rough approximations. As the estimates (except those for birth rate and marriage rate purposes) are for the civil population only, enlistment has been treated as equivalent to emigration. The estimated civil population of England and Wales was 34,500,000 in 1916 (15,000,000 males and 19,500,000 females). The marriages during 1916 numbered 279,846, a rate of 14.9 persons per thousand, 0.6 below the average rate of the decade 1901-1910. The marriage rates for 1916 were 49.5 for males and 41.0 for females, the lowest hitherto recorded for females, and the lowest but one for males. We have thus the curious phenomenon of an unprecedentedly high marriage rate in 1915 (explained in previous letters to THE JOURNAL) succeeded by an almost unprecedentedly low one in 1916. The flood of marriages which set in with the second quarter of 1915 did not ebb until a year later, so that considerably more marriages were registered in the first quarter of 1916 than in the corresponding quarter of any previous year. These violent changes are no doubt the direct consequences of the war, and appear in 1917 to be giving place to a less abnormal state of affairs. There was in 1916 a notable increase in the proportion of marriages of young widows. The population of widows under 30 years of age must have been greatly increased by the war. In proportion to the total population, the birth rate was 20.9 per thousand living. The reduction of natality accompanying the war amounted to only 12 per cent., whereas in Germany the fall is reported to have been 40 per cent. in the two years 1915 and 1916. The excess births over deaths was 277,303. The number of fatal casualties incurred by English and Welsh troops during the year must be very much lower than 277,303, and so the increase in population must have continued. The German statistics record 1,331,000 deaths in 1916, apparently exclusive of at least the great majority of fatal war casualties, as against 1,103,000 births; and the Hungarian figures for deaths "not in action" are 428,057, as against 333,551 births. In England and Wales the deaths of 508,217 persons were registered, a rate of 13.3 per thousand. The deaths of children under 1 year of age numbered 71,646, or 91 per thousand, the lowest rate ever recorded. Eighty-eight reputed centenarians died, seventy-nine of whom were women.

PARIS LETTER

PARIS, Feb. 28, 1918.

The Oculocardiac Reflex May Differentiate True Nervous Shock

At a recent meeting of the Réunion médicale de la IV-e Armée, Dr. H. Dorlencourt read a very interesting paper on this subject. Of twenty-six cases of shock in which he tested for this oculocardiac reflex, he found that it was absent in twenty. This abolition of the reflex was noted even in the milder cases of shock, and appeared to be due solely to the shock; local or general infections, the severity of the wound or hemorrhage did not seem to be factors in the suppression of the reflex. In three cases the reflex was positive, but it was weak and much retarded. In no case did it appear until after pressure had been applied to the eyeball for thirty seconds; in one case not until after 105 seconds of compression. In three other cases the reflex was inverted and retarded. These experiences suffice to prove the functional inactivity of the nerve centers regulating the vegetative processes of the body. The study of the oculocardiac reflex is thus a veritable functional interrogation of the most important centers of the *vie végétative*. It enables the physician to demonstrate that when shock is sufficiently intense, centripetal excitation becomes incapable of provoking the usual reaction on the part of these centers. The abolition of this reflex furnishes new proof in support of the theory which regards shock as being a condition of functional insufficiency of the nerve centers.

HEMORRHAGE AND PSEUDOSHOCK

Dorlencourt added that severe hemorrhage may produce a typical condition of shock; but in certain cases, relatively frequent, true shock of nervous origin does not appear. The posthemorrhagic state leads to a condition of pseudoshock, simulating true shock closely in its principal manifestations. The differential diagnosis is very difficult, but yet in all cases, the distinction should be made between pseudoshock of hemorrhagic origin and true nervous shock, because the therapeutic indications in both instances are wholly unlike. It is to be regretted that frequently the apparent identity of the symptoms determines the treatment that is adopted. To institute treatment without having differentiated between these two conditions means risking the life of the patient. Dorlencourt summarized the characteristic symptoms on which a differential diagnosis should be based, and related the experiments he has conducted to establish whether the oculocardiac reflex might serve as a differential sign. This reflex was found abolished in true nerve shock in 76 per cent. of the cases; in acute posthemorrhagic cases it was absent in only 28 per cent.

DIFFERENTIAL VALUE OF REFLEX

The examinations on which these statistics are based were too few in number to permit of drawing definite conclusions; however, it is apparent that the oculocardiac reflex is a useful sign in making a differential diagnosis between nerve shock and posthemorrhagic pseudoshock. The study of this reflex among shock victims permits of putting in evidence the state of inactivity and of functional disturbance of the centers of the *vie végétative* in the shock state. From the practical point of view this research seems, to some extent, to permit the differentiation of true shock from certain syndromes with which it might be confused.

War Wounds of the Rectum

Dr. Mocquot, professeur agrégé à la Faculté de médecine of Paris and chirurgien des hôpitaux, and Dr. Fey recently communicated to the Paris Société de chirurgie their observations made in thirty cases of projectile wounds of the rectum. Among these cases were four of wounds of the peritoneal portion of the rectum, nineteen of the extraperitoneal rectum and anus, and seven of the recto-urinary passages. Among the wounds of the peritoneal portion, there were four cases of penetrating wounds of the abdomen with multiple visceral wounds. The projectile had wounded the rectum in each case, the small intestine in three cases, the cecum in two cases, the mesentery in one case. In three cases the rectal injury had been discovered and treated in the course of a laparotomy; in one case it was not recognized. In order to expose these wounds well and suture them, the patient must be put in the Trendelenburg position, a median incision made close to the pubic bone and the pelvis well drained. Of these four patients one was in shock and died some hours after the operation; one was operated on twenty-three hours after the wounding; peritonitis had already set in and he died the next day. A third, whose rectal wound remained unrecognized and was not sutured, died on the fourth day; the fourth recovered. In this case there was, besides the rectal perforation, a perforation of the small intestine and a wound of the mesentery from which blood was spurting.

With wound of the extraperitoneal portion of the rectum and of the anus (nineteen cases), the treatment included treatment of the wounds of the soft parts and of the bony skeleton; treatment of the rectal wound and exclusion of the rectum by making an artificial anus. These wounds often being gangrenous, it is necessary to excise freely the track of the projectile—bringing the wound well into view—and extract all foreign bodies. In cases of wounds of the anal canal, it is not advisable to attempt to suture but allow the wound to heal by granulation, even at the expense of the subsequent formation of a stricture. On the other hand, wounds of the ampulla should be sutured, but always with exclusion of the rectum and the making of a colostomy. Of the nineteen patients in this group, ten were cured by

operation; nine died. Mocquot and Fey had seven cases in which besides the wounds of the rectum there was also a wound of the bladder or urethra. In each case the injuries were the result of wounds inflicted in a sagittal direction (two perforating bullet wounds; four obscure wounds caused by shell fragments). The wounds of the upper rectum and bladder, four in number, all developed a rectovesical fistula. One only, seen early and treated at once, was cured by cystostomy and suture of the rectal wound. The remaining three patients, who were seen late, were infected and died even though a colostomy had been done.

Mocquot and Fey state that an immediate cystostomy is the treatment of choice of rectovesical wounds. A colostomy is, perhaps, of value if there is also much injury of the surrounding soft tissues and bones. Direct suture is indicated only in wounds of the peritoneal portion of the rectum and of the bladder. These are abdominal cases, and laparotomy is effective.

Dr. Quénu, professor de clinique chirurgicale à la Faculté de médecine of Paris, stated that he had seen cases such as these only during the secondary period or late. He believes that the suture question is debatable; from his limited experience, he would be inclined not to suture but make the débridement of the rectum and anus as extensive as possible. He believes that ample excision of dead tissue in the rectum offers more protection against pelvic cellulitis and diffuse gangrene than a colostomy does. Perhaps it might be well to reserve colostomy for cases of destruction of the anus, for these lesions entail stricture, with obliteration, necessitating a colostomy, which might as well be done immediately.

Dressingless Treatment of Surgical Wounds

Dr. Phocas recently read a paper before the Paris Société de chirurgie on the complete or early dispensing with dressings in cases of surgical wounds that had healed by first intention. He has treated seventy-three surgical wounds by this method and has obtained excellent results. The procedure, which was at first utilized for the small appendectomy wound, was then used more generally. Many laparotomies done for disease of the adnexa or for fibroma have been dressed in this manner. It was found that this procedure lends itself very well to laparotomies because dressings always exert some pressure, and the patients feel better without them; gas is expelled more easily and slight distention does not cause either discomfort or pain. The absence of the dressing permits exposure of the wound to light and air, keeps it dry, and it heals more quickly. This method of procedure, the dressingless treatment, advocated some time ago by Le Fort, is made possible now because of the aseptic care given wounds during operation. It is a natural evolution of the dressing which has gone through many stages, with the method of Guérin, of Lister, of antiseptic dressings, and then the compress held in place with adhesive plaster. It is merely a case of simplifying the dressing more and more. The complete absence of dressing is the last stage of this evolution. The complications in the course of wound healing appear to occur less frequently and are of less gravity when wounds are treated by the "dressingless" method.

Honors Conferred on Americans

Acting on the recommendation of the undersecretary of state for the Service de Santé militaire, the government of the Republic has, as evidence of its appreciation of the services rendered by the American Ambulance at Neuilly-sur-Seine, conferred on three members of its Comité de direction the following decorations: M. Laurance V. Benet, president of the American Ambulance, is promoted to the grade of commander of the Legion of Honor; M. Eugène-André La Chaise, former director of the Ambulance in the army zone, is promoted to the grade of officer of the Legion of Honor; Dr. Charles Winchester du Bouchet, founder of the American Ambulance and surgeon in chief, is made chevalier of the Legion of Honor. The American Ambulance, established at the Pasteur lycée at the commencement of hostilities, was closed, July 20, 1917, handing over its quarters to the medical department of the American army. During the three years of its existence, more than 10,000 French and allied wounded were treated at the Pasteur lycée and in the auxiliary hospitals under the direction of the American Ambulance, and thousands of sick and wounded have been transported by its automobile ambulances in the army zone and in the Paris *camp retranché*.

Death of Dr. Defontaine

Dr. Defontaine, deputy and councillor-general of the *département du Nord* has just died, at the age of 59. At the beginning of the war he remained in his part of the country, which was occupied by the enemy, and suffered all the indignities inflicted by the foe. He was repatriated about a year ago, but his health having been profoundly undermined he succumbed to an affection which he had contracted during his captivity.

Personal

At its last meeting, the Académie des Sciences elected a nonresident member to take the place of the late M. Gosselet. M. Flahaut of Montpellier was elected. He has been the correspondent of the Académie for the section on botany since 1904, and is the author of many exceedingly meritorious publications, notably those dealing with the algae and with mushrooms.

Association News

THE CHICAGO SESSION

The Scientific Exhibit

The director of the Scientific Exhibit reports that many unusual and interesting exhibits are being arranged. He urges that others who may be in position to exhibit work demonstrating scientific investigation or specimens illustrating anatomic or pathologic conditions shall communicate with him. Applications for space in the Scientific Exhibit should be accompanied by a brief description and a statement of the object of the exhibit; the approximate space desired should also be stated. Allotments of space will be made in accordance with the estimated educational value of the exhibit and the priority of the application for space. Application blanks and further details are to be obtained by addressing Dr. George H. Weaver, Director of Scientific Exhibit, 637 South Wood Street, Chicago.

Special Arrangements for Medical Women

The medical women of Illinois are looking forward with pleasure to entertaining the women physicians of America in Chicago next June. Dr. Clara P. Seippel has been appointed by the Local Committee of Arrangements as the chairman of a subcommittee to have special supervision of this work. Subcommittees have been appointed to be of service to these visitors, not only during their stay, but before their arrival.

Committee on Hospitality.—Dr. Grace H. Campbell, chairman, 25 East Washington Street, Chicago, will be pleased to assist women physicians who wish hotel reservations, to obtain these so that women physicians may be lodged at one hotel.

Down town headquarters for the comfort and convenience of the women Fellows of the American Medical Association will be established in one of the women's clubs.

The subcommittee on entertainment of women physicians will be glad to hear from every medical woman who will be in Chicago during the week of the meeting and to be advised as soon as she knows definitely of the date and time of her arrival and her address while in the city, so that the committee may plan some social gatherings.

Marriages

Lieut. Alexander Boyd Montgomery, M. R. C., U. S. Army, Checotah, Okla., on duty at Camp Greene, N. C., to Miss Grace Sarah Clark of Long Beach, Calif., March 16.

Lieut. Charles Herbert Doe, M. R. C., U. S. Army, Rochester, Minn., to Miss Nora O'Donnell-Kitts of London, England, at Brighton, England, February 7.

Lieut. Harry Eugene Vander Bogart, M. R. C., U. S. Army, Chicago, to Miss Gertrude Berkey of Goshen, Ind., at Chicago, recently.

Lieut. Arnold Egard Saverien, U. S. N. R. F., Los Angeles, to Miss Dorothy Crawford of Davenport, Iowa, at Alameda, Calif., March 20.

Lieut. Kenneth Johnson, M. R. C., U. S. Army, to Miss Elsie Mathilda Ernst, both of New York, January 3.

Fred W. McKibbon, M.D., Oakdale, Calif., to Miss Mary Moorhouse of Lodi, Calif, at Los Angeles, recently.

Deaths

Major Charles B. Ewing, M.D., U. S. Army (retired), Baltimore; Missouri Medical College, St. Louis, 1879; aged 59; a Fellow of the American Medical Association; was appointed assistant surgeon in the Army, July 5, 1884; was promoted captain in 1889, and major in 1901; he was appointed a brigade surgeon of volunteers with the rank of major in June, 1898, and major and surgeon of volunteers, Nov. 1, 1899; he was retired, Nov. 17, 1909; died at his home, March 1.

William Gwain Eynon, M.D., New York City; Bellevue Hospital Medical College, New York, 1887; aged 53; a Fellow of the American Medical Association; formerly president of the Bronx County Medical Society; attending physician to the Home of Refuge, New York City; assistant attending physician to the Park Hospital, and consulting physician at the Bronx Eye and Ear Hospital; died at the New York Hospital, March 24, from pneumonia.

Sarah R. Mead, M.D., Newark, N. J.; Woman's Medical College of New York Infirmary for Women and Children, New York City, 1883; aged 70; a Fellow of the American Medical Association; a member of the New York Neurological Society; died at the Mountainside Hospital, March 17, from injuries received in an automobile accident a few hours before.

Capt. Samuel Chandler Baker, M.D., M. R. C., U. S. Army, Sumter, S. C.; University of Virginia, Department of Medicine, Charlottesville, Va., 1888; aged 51; a Fellow of the American Medical Association; a member of the American College of Surgeons; died at his home, while on a furlough from Camp Wheeler, Macon, Ga., March 20, from pneumonia.

George Francis Harris, M.D., Buffalo; Cornell University Medical College, New York City, 1904; aged 44; a Fellow of the American Medical Association; a member of the medical staff of the Buffalo State Hospital; formerly a practitioner of Binghamton; a member of the Psychiatrical Society of New York; died at his home, March 18.

Charles W. Gensimore, M.D., Bedford, Pa.; Baltimore University School of Medicine, 1898; aged 42; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; a member of the United Spanish War Veterans; died in the Western Maryland Hospital, Cumberland, March 19.

Herbert Lee, M.D., St. Joseph, Mo.; Central Medical College, St. Joseph, Mo., 1899; aged 56; a Fellow of the American Medical Association; a member of the American Medico-Psychological Association; formerly professor of chemistry in the Ensworth Medical College; committed suicide, March 21, while demented.

Lieut. George Jackson Brand, M.D., M. R. C., U. S. Army, La Fayette, Ill.; Loyola University School of Medicine, Chicago, 1910; aged 32; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; on duty at Fort Sill, Okla.; died, February 12, from pneumonia.

David Penfield Austin, M.D., New York City; Columbia University College of Physicians and Surgeons, 1866; aged 83; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died suddenly, March 19, following a fall in his home.

Dyer J. Jenkins, M.D., Broadway, Ohio; Starling Medical College, Columbus, 1898; aged 44; a member of the Ohio State Medical Association; formerly coroner of Union County; was instantly killed, March 19, when his acetylene lighting plant, which he was cleaning, exploded.

Archelaus Ernest Turrentine, M.D., Blytheville, Ark.; University of Nashville, Medical Department, 1903; aged 40; a Fellow of the American Medical Association; formerly a member of the Mississippi State Medical Association; died at his home, March 12, from pneumonia.

Abbott W. Slaughter, M.D., Green Bay, Wis.; St. Louis (Mo.) Medical College, 1884; aged 57; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; died suddenly, March 18, from heart disease.

Charles Holmes, M.D., Washington, D. C.; Howard University, Medical Department, Washington, D. C., 1886; aged 67; a clerk in the office of the United States Weather Bureau for thirty-five years; died at the home of his daughter, March 13.

Lieut. Hubert Ferrell, M.D., M. R. C., U. S. Army, Tyler, Texas; University of Texas, Department of Medicine, Galveston, 1909; aged 32; a Fellow of the American Medical Association; died in Dallas, Texas, Februray 24, from spinal meningitis.

Stanley C. Newlin, M.D., Anderson, Ind.; Medical College of Ohio, Cincinnati, 1881; aged 61; formerly a Fellow of the American Medical Association; formerly president of the Madison County Medical Society; died at his home, March 20.

Percy B. Wilson, M.D., Sneads, Fla.; University of Alabama School of Medicine, Mobile, 1895; aged 46; formerly a Fellow of the American Medical Association; a member of the Florida Medical Association; died at his home, March 10.

Olin J. Fryer, M.D., Greenwich, N. Y.; New York Homeopathic Medical College, New York City, 1905; aged 44; a member of the Medical Society of the State of New York; died suddenly at his home, March 14, from heart disease.

Eugene Storer, M.D., Wilkinsburg, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1907; aged 33; a member of the Medical Society of the State of Pennsylvania; died at the home of his parents in Wilkinsburg, March 19.

Granville Moody Brubaker, M.D., Roxbury, Pa.; Baltimore Medical College, 1894; aged 49; formerly a member of the Medical Society of the State of Pennsylvania; died at the home of his father in Waynesboro, Pa., March 15.

Oscar James Russi, M.D., Jersey City, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1901; aged 41; formerly house physician of St. Francis College, Jersey City; died at his home, March 9, from pneumonia.

Randall Thompson, M.D., Kildeer, N. D.; Chicago College of Medicine and Surgery, 1908; aged 42; formerly a member of the Illinois State Medical Society; died in a hospital in Mandan, N. D., March 11, from acute nephritis.

William Nelson Mebane, M.D., Greensboro, N. C.; George Washington University, Department of Medicine, Washington, D. C., 1906; aged 41; a Fellow of the American Medical Association; died February 5, from pneumonia.

Benjamin F. Larue, M.D., Appleton, Minn.; Rush Medical College, Chicago, 1870; aged 71; formerly a member of the Minnesota State Medical Association; was found dead in bed, February 12, from cerebral hemorrhage.

Edgar P. Little, M.D., Manor, Ga., Atlanta Medical College, Atlanta, Ga., 1892; aged 50; formerly a member of the Medical Association of Georgia; died at a sanatorium in Valdosta, March 14, from heart disease.

Linus James McAdam, M.D., Barker, N. Y.; Niagara University, Medical Department, Buffalo, 1890; aged 59; for many years a practitioner of Buffalo; died at his home, March 17, from injuries received when kicked by a horse.

James C. Davies, M.D., Emmetsburg, Iowa; University of Iowa College of Medicine, Iowa City, 1880; formerly a member of the Iowa State Medical Society; formerly a practitioner of Idaho; died at his home, March 21.

William Edgar Wagner, M.D., New York City; Jefferson Medical College, Philadelphia, 1906; aged 40; formerly a Fellow of the American Medical Association; died at a hospital in New York City, March 17.

William H. McCurdy, M.D., Delta, Pa.; Jefferson Medical College, Philadelphia, 1881; aged 63; a member of the Medical Society of the State of Pennsylvania; died at his home, March 22, from pneumonia.

Lieut. Gustaf Lewis Norstedt, M.D., M. R. C., U. S. Army, Mount Carmel, Pa.; Jefferson Medical College, Philadelphia, 1916; aged 26; on duty at Camp Upton, N. Y.; died there, March 16, from pneumonia.

James Gilbert Hughes, M.D., Greeley, Colo.; Northwestern University Medical School, Chicago, 1892; aged 56; a Fellow of the American Medical Association; died at his home, January 4, from pneumonia.

Joseph Francis Doyle, M.D., Manchester, N. H.; University of Maryland School of Medicine, Baltimore, 1917; aged 27; an intern at St. Francis' Hospital, Hartford, Conn.; died in that institution, March 19.

Ripley H. Hunter, M.D., Bullard, Texas; University of Nashville, Medical Department, 1882; aged 49; a Fellow of the American Medical Association; died at his home, February 5, from pneumonia.

John A. Ronayne, M.D., Long Island City, N. Y.; Columbia University, College of Physicians and Surgeons, 1896; aged 44; died in the Polyclinic Hospital, New York City, March 18, from pneumonia.

James Beauregard Eubanks, M.D., Monroe, N. C.; Vanderbilt University, Nashville, Tenn., 1887; aged 56; a Fellow of the American Medical Association; died at his home, March 9, from pneumonia.

Lloyd D. Knott, M.D., Lebanon, Ky.; University of Louisville, Ky., 1866; aged 72; formerly a member of the Kentucky State Medical Association; died at his home, March 20, from an infection.

Oliver Laird Miller, M.D., Pittsburgh; Jefferson Medical College, 1863; aged 79; a Fellow of the American Medical Association; a veteran of the Civil War; died at his home, March 13.

Benjamin F. Jones, M.D., Goldfield, Colo.; College of Physicians and Surgeons, Keokuk, 1878; aged 63; a member of the Colorado State Medical Society; was found dead in his office, March 18.

Charles Gimbernat, M.D., New York City; Bellevue Hospital Medical College, New York City, 1865; aged 75; retired physician and pharmacist; died at his home, March 14, from pleurisy.

William M. Lawrence, M.D., Sandborn, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1892; aged 61; was found dead in his office, March 19, from heart disease.

William J. McGurn, M.D., Boston; Tufts College Medical School, Boston, 1904; aged 45; a Fellow of the American Medical Association; died at his home, about March 20.

John M. Yost, M.D., Pulaski, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1863; aged 80; a veteran of the Civil War; died at his home, January 7.

Charles Henry Prindle, M.D., Chicopee, Mass.; University of Vermont, College of Medicine, Burlington, 1885; aged 61; died at his home, January 21, from pneumonia.

George C. G. Givan, M.D., Harriman, Tenn.; Medical College of Indiana, Indianapolis, 1890; aged 64; a Fellow of the American Medical Association; died, March 15.

Perry Allen Watson, M.D., Columbia, Mo.; Bellevue Hospital Medical College, New York City, 1867; aged 85; died at his home, January 19, from senile debility.

William Teegarden, M.D., Springfield, Ohio; Homeopathic Hospital Medical College, 1872; aged 70; died suddenly, March 15, from cerebral hemorrhage.

Edward Lawrence Salmon, M.D., Maynard, Mass.; Harvard University Medical School, Boston, 1905; aged 40; died at his home, March 17, from pneumonia.

Charles Humphrey Treadwell, M.D., Chicago; Harvey Medical College, Chicago, 1905; aged 46; died at his home, March 24, from diabetes mellitus.

William D. McCune, M.D., Branchton, Pa.; Miami Medical College, Cincinnati, 1879; aged 70; died at his home, March 16; from senile debility.

Francis R. Salisbury, M.D., Sparta, Wis.; Rush Medical College, Chicago, 1884; aged 59; died at St. Mary's Hospital, March 20, from septicemia.

Milford B. Shipp, M.D., Salt Lake City, Utah; Jefferson Medical College, Philadelphia, 1883; aged 82; died at his home, March 15.

Mortimer Haight, M.D., Toronto, Ont.; McGill University, Faculty of Medicine, Montreal, 1893; aged 49; died at his home, March 12.

William Wesley Keeling, M.D., Nemaha, Neb.; Eclectic Medical College, Cincinnati, 1864; aged 66; died at his home, about March 19.

Joseph A. Bonnette, M.D., Baltimore; Baltimore Medical College, 1890; aged 60; died at his home, March 19, from pneumonia.

Reuben Dunn Small, M.D., Gardiner, Me.; Bowdoin Medical School, Portland, 1869; aged 80; died at the home of his son, about March 8.

Charles Frank Osman, M.D., Boston; Harvard University Medical School, 1880; aged 61; died at his home, March 9, from heart disease.

George H. Webster, Janesville, Wis. (license, Wisconsin, 1900); aged 57; died at his home, December 3, from paralysis.

Pren M. Moore, M.D., Warsaw, Ohio; Miami Medical College, Cincinnati, 1873; aged 70; died at his home, March 13.

H. H. Summers, Columbus Junction, Iowa (license, Iowa, 1887); aged 67; died at Cedar Rapids, Iowa, March 11.

Frederick J. Klussman, Toledo, Ohio (license, Ohio, 1896); died in St. Vincent's Hospital, Toledo, March 9.

The Propaganda for Reform

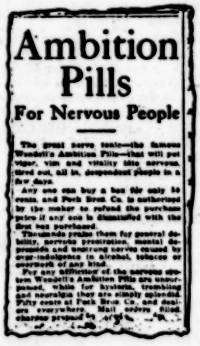
IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SOME MISCELLANEOUS NOSTRUMS

What Was Found by the Chemists of the Louisiana State Board of Health

Louisiana has long ranked high among those southern states that have been active in safeguarding the health of their citizens. It was the Louisiana "Health Train," it will be remembered, whose "patent medicine" exhibit was responsible for suit being brought against Dr. Dowling, the president of the Louisiana State Board of Health, by one of the concerns affected by the exhibit. It may be mentioned incidentally that this suit, after a mistrial, was never again reopened. Continuing its policy of giving the public the facts regarding worthless, dangerous or misleadingly-advertised nostrums, the Bureau of Food and Drugs of the Louisiana State Board of Health has, at the suggestion of its president, analyzed several widely advertised "patent medicines." The results of some of these analyses are briefly given in what follows:

Wendell's Ambition Pills.—This "great nerve tonic" will, if one is to believe the advertisements, "put vigor, vim and vitality into nervous, tired out, all-in, despondent people in a few days." The Louisiana chemists reported that each pill was found to contain a little over one-thirtieth of a grain of strychnin and about one-fifth of a grain of iron in the form of the sesquioxid (ferric oxid). Pepper, cinnamon and ginger were also found and what was probably aloes in very small amounts. These pills are sold at 50 cents a box, each box containing forty-two pills. Under our present lax methods of permitting almost any dangerous drug to be sold indiscriminately, provided it is in the form of a "patent medicine," it seems, from the Louisiana findings, that it is possible for any one to purchase enough strychnin in a single box of Wendell's Ambition Pills to kill an adult.


Ambition Pills

For Nervous People

The great nerve tonic—the famous Wendell's Ambition Pills—that will put vigor, vim and vitality into nervous, tired out, all in, despondent people in a few days.

Any one can buy a box for only 50 cents, and Peck Bros Co. is authorized by the maker to refund the purchase price if any one is dissatisfied with the first box purchased.

Thousands praise them for general debility, nervous prostration, mental depression and restoring nerves caused by over-indulgence in alcohol, tobacco or overwork of any kind.

For any sufferer of the nervous system Wendell's Ambition Pills are unsurpassed, while for hysteria, trembling and sexuality they are simply splendid. Fifty cents at Peck Bros Co. and druggists everywhere. Mail orders filled, charges prepaid by . . .

Exelento Quinine Pomade.—This preparation, which seems to be heavily advertised in the South, bids apparently for the colored trade. A typical advertisement consists of a picture of a negress with long wavy hair accompanied by the claim:

"Kinky hair made to grow long, soft and silky by using Exelento Quinine Pomade."

Other claims, made, of course, in newspapers and not in the trade package—for the latter would subject the manufacturers to prosecution under the Food and Drugs Act—are:

"Don't be fooled by using some fake preparation which claims to straighten your hair. Kinky hair cannot be made straight; you are just fooling yourself by using it. You have to have hair before you can straighten it. Now this Exelento Quinine Pomade is a hair grower. . . ."

"Don't let some fake Kink Remover fool you. You really can't straighten your hair until it is nice and long. That's what Exelento Quinine Pomade does, removes dandruff, feeds the roots of the hair and makes it grow long, soft and silky."

This preposterous fake was analyzed by the Louisiana state chemists who reported the following findings:

Petrolatum ("Vaseline")	91.84 per cent.
Liquid Paraffin with trace of Oil of Gaultheria	6.18 per cent.
Sulphur	1.29 per cent.
Other substances, including trace of quinin	0.098 per cent.

It would seem from these findings that calling this stuff a "Quinine Pomade" constitutes a definite misbranding under the Food and Drugs Act. Aside from this fact, however, it is a sorry commentary on the business ethics of great newspapers that they will accept the advertisement of so obvious a humbug.

Orchard White.—This is another of the thousand-and-one toilet preparations whose chief virtue lies in the money making possibilities they offer their exploiters. The advertisements of Orchard White emphasize the use of lemon juice as a "beautifier," the headline displays reading:

"Girls! Try This on Your Hands! Make a Lemon Beauty Cream."

"Lemon Juice Softens and Whitens Rough, Red Hands. Women can make a quarter pint of wonderful lemon beauty cream for a few cents. Nothing so good!"

"Lemon Juice For Freckles. Girls! Make beauty lotion at home for a few cents. Try it!"

"Lemons for Complexion. Juice of two lemons made into creamy lotion can be used to bleach, whiten and soften the skin."

Girls! Try This on Your Hands!
Make a Lemon Beauty Cream
Juice of lemons clears, softens and whitens the skin. Prepare a wonderful complexion lotion for a few cents!

"It seems that every girl and woman in town is making lemon lotion," says a well-known druggist, and the reason is because at the cost of a small jar of ordinary cold cream they can prepare a full quarter pint of a creamy bleach-white softener and complexion beautifier by squeezing the juice of two fresh lemons into a bottle containing three ounces of orchard white. Care should be taken to strain the juice through a fine cloth so no lemon pulp gets in, then this lotion will keep fresh for months. Every woman has known for years that lemon juice is used to bleach and remove such blemishes as freckles, sallowness, sunburn, and is the ideal skin softener, smoothener and beautifier.

Ordinary orchard white can be had at any pharmacy or toilet counter and two lemons from the grocer and make up a quarter pint of this fragrant lemon lotion and massage it daily into the face, neck, arms and hands. It should naturally help to whiten, soften, freshen and bring out the roses and beauty of any skin. It is marvelous to smoothen rough, red hands.—Adv.

Under such headings the advertisements advised using the juice of two lemons mixed with "3 ounces of orchard white." Throughout the advertisements the words "orchard white" are not capitalized, the obvious intent being to lead the public to believe that this "patent medicine" is an official drug. Analyzed by the state chemists of Louisiana, "Orchard White" was reported to be nothing more mysterious than a mucilage containing bismuth citrate, boric acid, alcohol and gum tragacanth. In commenting on this product, Dr. Dowling said: "Claims in the advertising, in addition to being very much exaggerated, are also false and misleading. The advertising of this preparation, to my mind, is particularly objectionable for the reason that it exploits a simple and harmless article—the juice of lemons—in order to lead the unsuspecting to purchase a product which might prove harmful."

Derwillo.—This is a nostrum sold for the skin and complexion and put out by "Mae Edna Wilder, Inc., of Rochester, N. Y.," one of the numerous names under which the Neal-Adkin mail-order concerns advertised. The state analyst of Louisiana reported that the preparation consisted of zinc oxid, calcium carbonate, starch and salicylic acid in water, the whole thing colored with carmine and perfumed with odor of rose or rose geranium.

Vick's Vap-O-Rub.—This product is a simple salve, and in general, the advertising is more conservative than is common to products of this type. The Louisiana chemists reported that Vaporub appears to be a mixture of yellow vaseline, which comprises more than three fourths of the salve, the

Head Stopped Up? Can't Breathe?
Try the Vick Vap-O-Rub Treatment
Applied in Salve Form Over Throat and Chest Relieves by Inhalation and Absorption.
VICK'S "VAP-O-RUB" SALVE

remainder consisting of camphor, menthol and oils of thyme, eucalyptus and turpentine.

La Creole Hair Dressing.—We are told in an advertisement in the Roanoke (Va.) *World-News* of Feb. 25, 1918, that "La Creole Hair Dressing Restores Original Color to Your Gray Hair." Further, we are asked to believe that this preparation is "No Dye" and does its work because it "Revives Color Glands." To quote:

"La Creole revives the natural color glands. In a short time you will be delighted to see all your gray hair (and entire head of hair) turn to the natural lustrous dark color your hair used to be. Not even a trace of gray will show—but all your hair will be of an evenly dark shade."

". . . get the original Hair Color Restorer—La Creole."

While in the newspaper advertisements "La Creole" is still a "hair restorer," on the trade package it is a "hair dressing." It used to be a "hair restorer" on the trade package but the manufacturers now blandly announce that "to comply with the Pure Food and Drugs Act the name was changed from 'restorer' to 'dressing' . . ." Lying on the trade package is, since the Food and Drugs Act went into effect, likely to prove expensive; lying in newspaper advertisements is still safe and, therefore, in keeping with the ethics of the "patent medicine" business. La Creole was analyzed by the Louisiana chemists who reported:

"This product consists of a perfumed solution containing lead acetate, sulphur and glycerin, alcohol and water. The action of the lead acetate and sulphur forms a lead sulphid compound which is dark brown thus giving hair a dark brown color."

From this it will be seen that La Creole, in addition to being advertised under lying claims, is one of those dangerous lead-containing mixtures whose use may give rise to symptoms of poisoning.

Prescription A 2851 for Rheumatism.—This product, which is said to have been known earlier as "Eimer and Amend's Rheumatic Remedy," was analyzed by the state chemists of Louisiana who reported that the preparation seemed to be essentially nothing more nor less than a low grade of sherry wine containing approximately 7 ½ per cent. of potassium iodid.

Sloan's Liniment.—This preparation is one of those proprietary remedies which, if truthfully advertised, might have a very proper place among home remedies. Unfortunately, it

is not truthfully advertised. With every bottle of the preparation there is a circular advertising other products of the same firm, some of which are seriously objectionable. Analyzed by the chemists of the Louisiana State Board of Health, "Sloan's Liniment" was reported to have approximately the following composition:

Oil of turpentine, probably about	46-50 per cent.
Oil of camphor, probably about	36 per cent.
Oil of sassafras, probably about	16 per cent.
Capsicum	Present

GUAIODINE

Report of the Council on Pharmacy and Chemistry

The following report on Guaiodine, marketed by the Intravenous Products Company, Denver, has been adopted by the Council and its publication authorized.

W. A. Puckner, Secretary.

A referee of the Committee on Pharmacology in submitting to the Council a report from the A. M. A. Chemical Laboratory on Guaiodine advises that the Laboratory's examination shows that instead of containing free "colloidal" iodin as claimed, the preparation is essentially an iodated fatty oil, containing only combined iodin. Equally misleading, in view of the Laboratory's findings, are the implied claims that the antiseptic action of Guaiodine corresponds to that of free iodin.

Guaiodine is advertised mainly for the treatment of gonorrhea. While it may be true that the guaiacol contained in Guaiodine has some beneficial effect, especially when preceded by potassium permanganate irrigation as advised, the advertised claim that "Guaiodine acts as a specific for gonorrhea in a majority of cases" is utterly false.

The "case records" offered to establish the therapeutic value of Guaiodine are in themselves sufficient to condemn the "evidence." The following are fair samples:

"The second boy came a day or so later with a slight discharge with the characteristic burning and itching, and with symptoms of a beginning gonorrhea, and judging from the source of the infection, it was believed to be so. Two injections of Guaiodine were given when the discharge ceased."

"I have several cases that were completely cured in a very short time. I note this, that the first dose causes a cessation of the discharge and the second seems to increase the flow, but the color is changed. I give three doses, and then use a mild wash, and in ten days they are well. I am very pleased with this preparation and very truly believe that it is the best there is to date for the positive cure of gonorrhea."

REPORT OF THE CHEMICAL LABORATORY

Guaiodine is manufactured by the Intravenous Products Company, Denver, Colorado. The "literature" which accompanies the product describes Guaiodine as:

". . . an electro-chemically prepared iodin, suspended in oil, containing iodin, the same strength as the U. S. P., tincture of iodin, or 7 per cent., together with a therapeutic dose of guaiacol."

The Intravenous Products Company claims that Guaiodine is made by an "electro-chemical process of preparing colloidal iodine," discovered by one E. B. Page, and that by this process the tendency of iodin to produce iodism has been "overcome." It is said to be "pre-eminently an antiseptic and germicide." Guaiodine is a dark brown, oily liquid with a specific gravity of 0.9845 at 15.6 C. and an odor suggestive of guaiacol. Its solubilities were those of a fat. Free iodin was absent in the recently purchased specimen (traces were present in an older one). Steam distillation indicated that the product consisted of volatile and nonvolatile constituents. The volatile matter was concluded to consist, in the main, of guaiacol or some guaiacol-like body, and the nonvolatile matter to be an iodized fatty oil. Quantitative determinations indicated that Guaiodine contained about 7.25 per cent. of iodin in combination, and that it is composed approximately of 3 per cent. volatile matter and 97 per cent. nonvolatile matter. Hence Guaiodine appears to be an iodized fatty oil to which a small amount of guaiacol or some guaiacol-like substance has been added.

THE COUNCIL'S ACTION

On the recommendation of the referee, the Council voted that Guaiodine be declared inadmissible to New and Nonofficial Remedies because of false statements as to composition and action.

[Editorial Note.—Advertisements of Guaiodine have appeared, during the past year, in the following:

New York Medical Journal
Medical Review of Reviews
Military Surgeon
American Medicine
Urologic and Cutaneous Review
Therapeutic Gazette
American Journal of Surgery
Medical Times
International Journal of Surgery
American Journal of Clinical Medicine]

Correspondence

THE SAVING OF LARD BY THE DRUGGIST

To the Editor:—There are about 40,000 druggists in the United States, each of which uses, at a low average, 25 pounds of lard per annum. This means 1,000,000 pounds in all. Much the greater portion of this is used as zinc ointment, the most frequently employed ointment both among the general medical profession and with the laity. Zinc ointment and simple cerate make up the bulk of the apothecarial lard. In both these preparations the petroleum products might be advantageously substituted. In fact, there is such a zinc pomade, put up in tubes, which enjoys a great popularity. If, however, a physician writes a prescription, or a customer asks for zinc oxid ointment, the druggist has no choice—he must, according to the pharmacopeia, dispense an ointment composed of benzoinated lard and zinc oxid, every ounce of which means practically an ounce of lard, enough pork fat, together with the other fats contained in an ordinary diet, to supply a hard working man for a day.

Pork fat, especially when enclosed in its normal fat tissue, is an admirable fat for a man engaged in hard muscular labor. It is firm and compact, and does not readily decompose, and therefore may be kept for a long time without deterioration. When eaten it is slowly liberated from its tissue enclosure, and is therefore slowly emulsified and slowly split into the fatty acids and glycerin, and therefore its fat is delivered slowly to the thoracic duct, and to the veins. This slow delivery insures that the man consuming it has fat supplied to his blood in manageable quantities for a long time after a meal. As the working man says, "It stays by me." The softer fats, such as bird fat, turkey fat, chicken fat and goose fat, and milk fat, such as butter, milk and cream, are more readily decomposable, more readily absorbable, more readily delivered to the blood, and therefore not so enduring as pork fat.

What are the means to be taken to save this excellent fat for the man working in the fields at home, or the man pointing the gun abroad?

In the first place, an emergency order should be passed by the state boards of health advising the use of petrolatum with about 5 per cent. of paraffin to take the place of lard as an ointment base. To await the passage of a law would take too long.

An ointment base composed of equal parts of lanolin and petrolatum is also an excellent substitute, and in many ways superior to lard, as there is no question of its decomposing, neither of the ingredients is of the slightest use as food, and food has become the central fact in the great war.

Douglas W. Montgomery, M.D., San Francisco.

[Comment.—It is doubtful if simple cerate and zinc ointment make up the bulk of lard used by pharmacists. Neither is there any substantial basis for believing that, as food, lard is superior to other fats under ordinary conditions. Further, the substitution of petrolatum for lard in ointments is a debatable question; this undoubtedly could be done frequently in some cases, but not in all. But while we are talking of economizing in the use of lard, let us not forget that there is urgent need for curtailment in the use of other fats, as well as in the use of sugar, alcohol and glycerin. The United States Food Administration calls attention to the fact that "it is possible to reduce largely the amount of these

materials used in medicines by the adoption of infusions, decoctions and solid forms of medication, such as capsules, in place of elixirs, syrups, fluid extracts and tinctures." And while we are economizing, some of us could occasionally, avoid the prescribing of preparations which are not specifically indicated, and which we are not sure will influence favorably the course of the disease.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

GAS TREATMENT OF GONORRHEA

To the Editor:—IN THE JOURNAL, March 9, 1918, p. 738, an article from a French magazine on the treatment of gonorrhea is abstracted. I would be pleased to have the treatment explained in full.

HENRY LAUGHLIN, M.D., Philadelphia.

ANSWER.—In addition to the details given in the abstract, we quote the writer's words: In a case of acute anterior gonorrheal urethritis, "Notre traitement consistera à lui injecter par le méat 5 c.c. du mélange (mixture) de nos 2 solutions dans les proportions suivantes: 4 c.c. solution A et 1 c.c. solution B." Solution A is prepared by dissolving 6 gm. of picric acid in 1,000 c.c. of water; Solution B by dissolving 17 gm. of anhydrous sodium thiosulphate (hyposulphite) in the same quantity of water. "These two solutions being in contact, the hydrogen radical of the acid is replaced by the metal radical of the neutral salt corresponding to the hyposulphurous acid to form soluble sodium picrate at the same time that the gas, sulphur dioxid, SO_2, is generated, with a deposit of sulphur." The solutions should both be tepid. The generation of gas continues some time, and is not complete until after twenty minutes at body temperature, 37 C. The injection into the meatus is not painful, contrary to what might be expected from the irritation produced in the air passages by this gas, SO_2. During the acute phase he gives three injections a day of the mixture, 4 c.c. of Solution A and 1 c.c. of Solution B. When the posterior urethra becomes involved, he injects a total of 6 c.c. instead of 5 c.c., of the mixture, using 4.8 c.c. of Solution A and 1.2 c.c. of Solution B. When the urethritis is subsiding, and in chronic cases, he gives one injection a day, using 5 or 6 c.c. of the mixture according as the three-glass test gives positive or negative findings. The injected fluid should be retained for fifteen minutes at least.

SUPPLY OF NEO-ARSPHENAMIN

To the Editor:—Is there any neosalvarsan to be had at this time? If not, what in your estimation is the safest product to use which will give the desired result?

GUSTAV SCHMITT, M.D., Milwaukee, Wis.

ANSWER.—No German manufactured neosalvarsan has been imported into this country for some time, and it is unlikely that any is available. The Federal Trade Commission has granted an importing license to the Diarsenol Company, Inc., 475 Ellicott Square, Buffalo, for the Canadian brand of neoarsphenamin, neodiarsenol. Licenses to manufacture were also issued to the Takamine Laboratories, New York, to the Farbwerke-Hoechst Company, New York, and to the Dermatological Research Laboratories, Philadelphia. It is intimated that an importing license will also be granted for the French product—novarsenobenzol. The safest and most effective product, provided one has mastered the technic is one of the arsphenamins, not the neoarsphenamins.

MEDICOLEGAL DECISION ON PRESCRIBING OF NARCOTICS

To the Editor:—IN THE JOURNAL (March 16, 1918, p. 804) I note an abstract of the decision in the case of the *United States v. Reynolds* (U. S.), 244 Fed. R. 991. Does this apply to the prescribing by physicians of other narcotics as well?

GEORGE I. GARRISON, M.D., Quapaw, Okla.

ANSWER.—It is likely that the medicolegal decision concerning which you inquire would apply to all the narcotics covered by the Harrison Antinarcotic Law.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 14. Sec., Dr. T. J. Stout, Brinkley.
ARKANSAS (E): Little Rock, May 14. Sec., Dr. C. E. Laws, Ft. Smith.
DISTRICT OF COLUMBIA: Washington, April 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
HAWAII: Honolulu, May 6. Sec., Dr. G. A. Batten, Box 375, Honolulu.
NEVADA: Carson City, May 6. Sec., Dr. S. L. Lee, Carson City.
NEW MEXICO: Santa Fe, April 8. Sec., Dr. R. K. McClanahan, East Las Vegas.
NEW YORK: Albany, Buffalo and Syracuse. May 21-24. Sec., Dr. W. J. Dendo, Education Bldg., Albany.
OKLAHOMA: Oklahoma City, April 9-10. Sec., Dr. J. J. Williams, Weatherford.

California July Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, reports the oral and written examination held at San Francisco, July 10-12, 1917. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 166 candidates examined, 150, including 17 osteopaths, passed, and 16, including 8 osteopaths, failed. Fifty-seven candidates were licensed through reciprocity, 13 candidates were granted certificates to practice chiropody, and 7 candidates were granted drugless practitioner certificates. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
College of Medical Evangelists (1916) 83.7; (1917) 75.8, 80.4, 83, 86.7, 87.1, 87.1, 87.8, 91, 91.4, 92.2		
College of Physicians and Surgeons, Los Angeles (1917) 75.3, 76.1, 77.4, 78.3, 78.3, 78.7, 80.5, 80.7, 81.2, 81.5, 81.5, 82.1, 83.2, 83.9, 84.1, 84.3, 84.4, 84.5, 85.2, 85.3, 85.9, 85.9, 86, 86.1, 86.2, 86.2, 86.2, 86.2, 86.3, 87.1, 87.5, 87.7, 87.8, 88.1, 88.1, 88.2, 88.4, 88.8, 89, 89.7, 90.8, 90.9, 90.9, 91.7, 91.8, 92, 92, 92.2, 92.8, 93.7		
Coll. of P. and S., San Francisco	(1917)	80.3, 83.2, 83.4
Hahnemann Medical College of the Pacific (1917) 76, 76.4, 79.1, 79.3, 80.7, 81.1, 82.2, 84.4, 88.2, 89.3, 90.8, 97.1		
Leland Stanford Junior University (1916) 92.8; (1917) 81.3, 81.5, 83.7, 86.2, 86.9, 88, 88.2, 88.7, 89.2, 90.2, 91, 91.1, 94.4, 96.8		
Oakland College of Medicine and Surgery	(1917)	86.3, 90.1, 90.4, 92.7
University of California (1917) 81.5, 85, 85.9, 86.8, 87.2, 87.3, 87.7, 88.5, 88.5, 90.2, 91, 91.1, 91.7, 91.7, 92.4, 92.4, 92.9, 93, 93.1, 94.4, 95.7, 95.9, 96.8, 97.4.		
Loyola University	(1916)	75.1
University of Illinois	(1916)	86.2
Tulane University	(1916)	95.5
Harvard University	(1915)*	90.4
Tufts College Medical School	(1916)	75
Cornell University	(1916)	90
Jefferson Medical College of Philadelphia	(1916)	84.5
University of Pennsylvania	(1916)	86.4
Vanderbilt University	(1917)	84.5
University of Vermont	(1914)	83.7
Trinity Medical College	(1903)	84.2
University of Munich	(1913)	85.4
University of Edinburgh	(1910)	92.1
FAILED		
College of P. and S., San Francisco	(1917)	72.9, 73.1, 73.7
Hahnemann Medical College of the Pacific	(1917)	73.5
University of Colorado	(1907)	70.9
John A. Creighton Medical College	(1913)	65.3
Kyushu Imperial University	(1914)	64.5
Tokyo Charity Hospital Special Medical School	(1909)	62.2

* No grade given.

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1912)	Oregon
University of Southern California		(1904)	Arizona
Denver and Gross College of Medicine		(1906)	Colorado
Denver College of Medicine		(1892)	Utah
Columbian University		(1901)	Arkansas
Howard University		(1887)	S. Carolina
Chicago College of Medicine and Surgery		(1913)	Illinois
Chicago Homeopathic Medical College		(1886)	Iowa
Coll. of Med. and Surg., Chicago (Physiomedical)		(1903)	Utah
Coll. of P. and S., Chicago	(1888) Ariz.; (1905)	(1909)	Illinois
Hahnemann Medical College and Hospital of Chicago		(1910)	Illinois
Illinois Medical College		(1903)	Illinois
Northwestern University	(1902)	(1909)	Illinois
Rush Medical College	(1880) Illinois;	(1889)	Indiana
University of Illinois		(1914)	Illinois
Woman's Med. School of Northwestern Univ.		(1893)	Wisconsin
State University of Iowa College of Medicine		(1889)	S. Dakota
Hospital College of Medicine	(1901) Illinois;	(1906)	Kentucky
Kentucky School of Medicine		(1906)	Kentucky
College of Physicians and Surgeons, Baltimore		(1910)	Penna.
Tufts College Medical School		(1908)	New Hamp.
University of Minnesota	(1895)	(1903)	Minnesota
Barnes Medical College		(1908)	Nebraska
John A. Creighton Medical College		(1900)	Iowa

Lincoln Medical College	(1909)	Nebraska
University of Nebraska	(1907)	Nebraska
Albany Medical College	(1911)	New York
Bellevue Hospital Medical College	(1876)	Penna.
Columbia University	(1880) Ohio; (1914)	New York
Ohio Medical University	(1901)	Arizona
Western Reserve University	(1887)	New York
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1910)	Penna.
Jefferson Medical College of Philadelphia	(1914)	Iowa
University of Pennsylvania	(1888) Pennsylvania; (1914)	Illinois
University of Pittsburgh	(1912)	Penna.
Western Pennsylvania Medical College	(1891)	Ohio
University of Nashville	(1888) (1901)	Tennessee
Vanderbilt University	(1912)	Tennessee
University of Texas	(1908)	Texas
Milwaukee Medical College	(1906)	Wisconsin
Trinity Medical College	(1901)	N. Dakota
McGill University	(1896)	Vermont
Osaka Jikei Medical College	(1899)	Wyoming
Tokyo Charity Hospital Special School	(1911)	Nevada
University of Christiania	(1893)	N. Dakota

Mississippi October Examination

Dr. W. S. Leathers, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, Oct. 23-24, 1917. The examination covered 8 subjects and included 64 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 8 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1915)	81.2, 81.5
Chicago College of Medicine and Surgery	(1917)	77.5, 80
Loyola University	(1917)	83
Tulane University	(1917)	85.5
Meharry Medical College	(1917)	75
University of Tennessee	(1916)	77.2
FAILED		
College of Physicians and Surgeons, Little Rock	(1910)	36
Meharry Medical College	(1912)	65
Memphis Hospital Medical College	(1911)	61

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Arkansas	(1906)	Arkansas
Tulane University	(1915)	Louisiana
Memphis Hosp. Med. College	(1905) Louisiana; (1912)	Tennessee

Florida Eclectic November Examination

Dr. G. A. Munch, secretary of the Florida Board of Eclectic Medical Examiners, reports the practical and written examination held at Tampa, Nov. 20-21, 1917. The examination covered 7 subjects and included 69 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom failed. The following colleges were represented:

College	Year Grad.	Per Cent.
FAILED		
Georgia College of Eclectic Med. and Surg.	(1910) 70; (1916)	72
Hospital Medical College, Atlanta	(1909)*	73

* Graduation unverified.

Montana October Examination

Dr. S. A. Cooney, secretary of the State of Montana Board of Medical Examiners, reports the written examination held at Helena, Oct. 2, 1917. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 31 candidates examined, 26 passed and 5 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Colorado	(1917)	79.2
Chicago Coll. of M. and S.	(1913) 75.2; (1914) 86.6; (1917)	79.9
Loyola University	(1917)	83.3
Rush Medical College	(1902) 82.2; (1903) 75; (1916) 76.8; (1917)	82.6
University of Illinois	(1914)	83.8
State University of Iowa College of Medicine	(1906)	76.6
University of Louisville	(1912)	85.4
Detroit College of Medicine and Surgery	(1912)	82
University of Michigan Medical School	(1910)	85.7
Minneapolis College of Physicians and Surgeons	(1903)	82.3
Ensworth Central Medical College	(1907)	76.6
Ensworth Medical College	(1910)	81.8
Marion-Sims-Beaumont Medical College	(1903)	75
St. Louis University	(1917)	79
John A. Creighton Medical College	(1917)	80.7, 84.6
Cornell University	(1913)	83.1
Cincinnati College of Medicine and Surgery	(1901)	80.9
Eclectic Medical Institute	(1894)	83.9
Vanderbilt University	(1917)	83
Milwaukee Medical College	(1904)	77
FAILED		
Bennett Medical College	(1910)	73
Baltimore University	(1903)	51.1
University of Michigan Medical School	(1906)	73.1
John A. Creighton Medical College	(1917)	69.3
University of Oregon	(1915)*	56.1

* Official information states that this candidate is not a graduate of the school named.

Book Notices

Shock at the Front. By William Townsend Porter. Cloth. Price, $1.25. Pp. 151. Boston: The Atlantic Monthly Press, 1918.

Much of the material in this book originally appeared in a series of articles in the *Atlantic Monthly;* hence the primary purpose of the author was to write an informative and entertaining rather than a scientific article. The author writes in colloquial style with a conspicuous sense of humor, and his book is full of vivid descriptions of scenes en route and at the front.

Unfortunately, the promises held out by the author in the beginning of the book that he had discovered and would explain the cause of shock are not fulfilled. In concluding he says:

> I sailed for my own country, bearing with me the certainty that fat embolism is a frequent, if not the most frequent, cause of shock as seen on the battle field; and the further certainty that the use of carbon dioxid respiration treatment is of advantage.

The theory which he attempted to prove was that shock is always accompanied by low blood pressure; is caused by fat embolism in the capillary circulation; occurs most frequently, if not altogether, in cases of fracture of long bones, or in cases of extensive wounds of the subcutaneous fat tissues; the embolism causes a blocking of the vessels with a bleeding of the arteries into the veins, and the rebreathing of expired air changes the respiration, elevates the blood pressure and overcomes the shock. The details of his experiments are necessarily merely fragmentary outlines, but are probably more than sufficient for lay readers. It probably makes very little difference to the lay reader whether shock is produced, as suggested by Dr. Porter, or whether many other factors, such as those considered by the Medical Research Committee, whose extensive studies were recently published in The Journal, are of greater importance.

It is unfortunate also that the author sometimes paints with too heavy a brush. This is particularly true of the fourth chapter describing his visit to Compiègne and his observations of the Carrel-Dakin method, concerning which he is more than optimistic. The lay reader is likely to expect too much after reading the following description of an illustrative case seen after Dr. Porter's return:

> I saw recently in New York a man who had had for twenty-five years a large ulcer on the leg. He entered the war hospital of the Rockefeller Institute, July first. His wound was measured and the theoretical curve was drawn. It was seen that the curve would strike the normal at August 6. "On August 6," the man was told, "you will be healed"; and on the promised day, the last square centimeter closed.

But these considerations should not detract too much from the graphic pictures drawn by the author, and from the entertaining qualities of his book.

A Text-Book on Gonorrhea and Its Complications. By Dr. George Luys, Chief Medical Officer of the Urological Centre at the Military Hospital, Versailles. Translated and edited by Arthur Foerster, Captain, R. A. M. C. (T. C.). Second revised edition. Cloth. Price, $6.

In his preface to the second English edition, Capt. Arthur Foerster states that both Dr. Luys and he have been away from their homes for many months, and that collaboration being impossible, only a few minor changes have been introduced into the second edition. He points out further that no radical advance in the knowledge and treatment of gonorrhea has been made during the last few years. Most important among the alterations is the substitution of new figures for figures showing instruments of German manufacture. The colloidal silver preparations are especially more strongly advocated, and some remarks on electrical treatment have been added. The work is an excellent and complete discussion of the subject.

Medicolegal

Liability of Private Hospital for Theft by Nurse and Attacks by Strangers

(Vannah vs. Hart Private Hospital (Mass.), 117 N. E. R. 328)

The Supreme Judicial Court of Massachusetts sustains exception to a verdict for the defendant, which it was sought to hold liable for an alleged theft by a nurse of a ring which the plaintiff wore when she went under the ether for an operation, and missed when she regained consciousness in the private hospital operated by the defendant for gain. The court says that on the evidence the jury was warranted in finding that the ring was forcibly removed from the plaintiff's hand by one of the operating nurses who, when last heard from, was in California. If the nurse did steal the ring, it was plain that the defendant was not liable on the ground that in stealing the ring the nurse was acting within the scope of her employment as a servant of the defendant. If the plaintiff had stood in the relation of a stranger to the defendant, there would have been no error in the trial; but she did not stand in such relation. The case was not tried on the footing that the rights of the plaintiff in this action depended on the contract made by her with the defendant, and the presiding judge was wrong in telling the jury that the defendant's liability depended on the plaintiff's proving that it was negligent.

Under the contract entered into by the defendant corporation, it was its duty not only (1) to give the plaintiff a room in the hospital before and after the operation, and (2) to give her surgeon and family physician the use of the operating room for the operation, but also (3) to give to the plaintiff the services of such nurses as were necessary for her care before, after and during the operation. It expressly appeared that she paid to the hospital $15 a week for attendance. The services of the nurses which, under the contract, the defendant was bound to furnish her included the services of nurses while she was unconscious from the effects of the ether, a condition which was a necessary part of the operation; and the question which this court had to decide was whether there was a violation of duty on the part of the defendant under this contract if the operating nurse in question stole the ring by forcibly pulling it off the plaintiff's finger while she was under the effects of the ether, or whether on the facts appearing at the trial the jury could have so found. The court is of the opinion that the jury could have so found.

If, for example, a stranger had burst into the operating room, attacked the plaintiff and done her bodily harm, or had attacked the plaintiff while the nurses were carrying her from the operating room to her own room, and the defendant's nurses had stood by and done nothing to protect the plaintiff from those attacks, it is plain in the court's opinion that there would have been a violation of the duty owed by the defendant under its contract with the plaintiff. It is equally plain, in the court's opinion, that the duty owed by the defendant under its contract with the plaintiff extended to the care of the rings on her fingers while she was unconscious from the effects of the ether, as well as to the security of her person. And, finally, it is equally plain in the court's opinion that there is as much a violation of the duty owed by the defendant under the contract when the attack on the person or larceny of the ring is committed by one of the defendant's own nurses (whose duty it was to protect the plaintiff), as well as in the case in which the attack is made by a stranger, and the nurses do not undertake to protect her from the attack.

In its legal aspects, the case is governed by the decision in *Bryant* v. *Rich*, 106 Mass. 180, wherein it was held that, as a matter of contract, a passenger on a steamer had the right to receive proper treatment from the defendants and their servants and all of them. But a defense was made out if the defendant's evidence was believed that when the plaintiff was received into the hospital she was asked to put into the custody of the defendant corporation all her "valuables." On the other hand, if the plaintiff's evidence, that she was asked only to put her money into the custody of the hospital, was believed, her rights depended on the rule of *Bryant* v. *Rich*.

Communication of Syphilis to Wife an Assault

(State vs. Lankford (Del.), 102 Atl. R. 63)

The Court of General Sessions of Delaware holds, as the jury was charged in this case, that a husband may commit an assault and battery on his wife, notwithstanding the marriage relation. A wife in confiding her person to her husband does not consent to cruel treatment, or to infection with a loathsome disease. A husband, therefore, knowing that he has such a disease, and concealing the fact from his wife, by accepting her consent, and communicating the infection to her, inflicts on her physical abuse, and injury, resulting in great bodily harm; and he becomes, notwithstanding his marital rights, guilty of an assault, and indeed, a completed battery. If the accused knew he was infected with syphilis, and his infection was unknown to his wife, the intent to communicate the disease to her by having sexual intercourse with her may be inferred from the actual results. If the jury should find the evidence that the accused, knowing that he was infected with a venereal disease, and, without informing his wife of the fact, had sexual intercourse with her after such knowledge had been communicated to him, and thereby infected her with the disease, their verdict should be guilty. If the jury should find that the accused, during the period he had sexual relations with his wife, did not know that he was infected with a venereal disease, and that he did not communicate with his wife after being informed that he was infected, their verdict should be not guilty. The verdict was guilty.

Typhoid Fever Not Caused by an Accident

(State ex rel. Faribault Woolen Mills Co. et al. vs. District Court, Rice County, et al. (Minn.), 164 N. W. R. 810)

The Supreme Court of Minnesota reverses a judgment which allowed compensation under the workmen's compensation act to an employee of the woolen mills company for temporary disability caused by typhoid fever, the germs of which were alleged to have been ingested by drinking infected water furnished in the company's factory for the use of its employees. The court says that if contracting this disease by drinking infected water was an accident within the definition thereof contained in the law, the evidence was probably sufficient to sustain the findings of the district court.

Under statutes which provided compensation for personal injury by accident without defining the meaning of the terms used, there was a diversity of opinion among the courts as to whether diseases, and especially the so-called "occupational diseases," were accidents within the meaning of the statute. The American statutes seem to have been framed largely along the lines of the prior English statute. The English courts held that a disease, unless contracted in consequence of some injury to the physical structure of the body, was not a "personal injury by accident," within the meaning of the English law, until by amendment the law was expressly made to include occupational diseases. In *Finday* v. *Tullamore Union*, 48 Ir. L. T. 110, 7 B. W. C. C. 973, it was held that typhoid fever was not an accident within the meaning of the law. The courts of Michigan, New Jersey and Ohio seem to have taken the same view as the English courts. The Massachusetts court distinguished their statute from the English statute on the ground that it omitted the element of accident as a condition to recovery, and held that contracting a disease was "a personal injury," although it might not be an accident. The Wisconsin court held that contracting typhoid fever was an accident within the meaning of their law, but forceful reasons for the opposing view are set forth in the dissenting opinion of Justice Barnes. The United States Circuit Court of Appeals for the Ninth Circuit held that contracting typhoid fever was an accident within the terms of an insurance policy indemnifying against claims "on account of bodily injuries accidentally suffered."

To avoid the uncertainty previously existing and to make clear the class of injuries to which the Minnesota compensation law was intended to apply, the legislature inserted therein a definition of what shall be deemed an accident within the purview of such law. So far as here important, the statute provides for compensation "in every case of personal injury . . . caused by accident, arising out of and in the course of employment," and then provides that the word "accident" as used therein shall "be construed to mean an unexpected or unforeseen event, happening suddenly and violently, with or without human fault and producing at the time, injury to the physical structure of the body." By restricting the injuries for which compensation is to be made to those caused by accident, and by defining the term "accident" to mean "an unexpected or unforeseen event, happening suddenly and violently, . . . and producing at the time, injury to the physical structure of the body," the legislature clearly manifested an intention to exclude from the operation of the law disabilities caused by disease unless the disease resulted from an accident of the character above described; and the courts must give effect to such intention. The disease in the present case was not caused by an accident as that term is defined in the law. The disease germs were not taken into the system in consequence of anything which happened "suddenly and violently," or which at the time produced "injury to the physical structure of the body."

Society Proceedings

COMING MEETINGS

American Medical Association, Chicago, June 10-14.
Alabama State Medical Association, Birmingham, April 16.
American Dermatological Association, Philadelphia, May 23-25.
American Gastro-Enterological Association, Atlantic City, May 6-7.
American Gynecological Society, Philadelphia, May 16-18.
American Laryngological Association, Atlantic City, May 27-29.
American Orthopedic Association, Washington, D. C., April 22-23.
American Otological Society, Atlantic City, May 28-29.
American Pediatric Society, Lenox, Mass., May 27-29.
Arizona Medical Association, Phoenix, April 25-26.
Arkansas Medical Society, Jonesboro, May 7-9.
Association of American Physicians, Atlantic City, May 7-8.
California State Medical Society, Del Monte, April 16-18.
Connecticut State Medical Society, Hartford, May 15-16.
Georgia State Medical Association, Savannah, April 17-19.
Illinois State Medical Society, Springfield, May 21-23.
Iowa State Medical Society, Fort Dodge, May 8-10.
Kansas Medical Society, Kansas City, May 1-3.
Louisiana State Medical Society, New Orleans, April, 16-18.
Maryland Medical and Chir. Faculty of Baltimore, April 23-25.
Michigan State Medical Society, Battle Creek, May 7-9.
Mississippi State Medical Association, Jackson, May 14-15.
Missouri State Medical Association, Jefferson City, May 6-8.
Nebraska State Medical Association, Omaha, May 7-9.
New Hampshire Medical Society, Concord, May 15-16.
New York State Medical Society, Albany, May 21-24.
North Carolina State Medical Society, Pinehurst, April 16-18.
Oklahoma State Medical Association, Tulsa, May 14-16.
South Carolina Medical Association, Aiken, April 16-18.
South Dakota State Medical Society, Mitchell, May 21-23.
Tennessee State Medical Association, Memphis, April 9-11.

CHICAGO INSTITUTE OF MEDICINE

Meeting held March 28, 1918

Angina Pectoris

Dr. E. Fletcher Ingals and Mr. William R. Meeker: See The Journal, this issue, p. 969.

Pathology of Angina Pectoris

Dr. E. R. LeCount: See The Journal, this issue, p. 974.

Coronary Thrombosis in Relation to Angina

Dr. James B. Herrick: I wish to discuss four propositions: 1: Coronary thrombosis causes some attacks of angina. 2. Coronary thrombosis is not necessarily always fatal. 3. Coronary thrombosis produces a group of clinical symptoms that can frequently be recognized with a reasonable degree of certainty. 4. Experimental work seems to show that the electrocardiograph may be helpful in recognizing this condition. In speaking of coronary thrombosis we should also include some cases of coronary embolism.

As to the first proposition there is little need for discussion. All clinicians, I am sure, have seen cases of angina, which, if they have been checked by necropsy, have shown obstruction of the coronary artery by a thrombus.

The second proposition, that coronary thrombosis is not always necessarily fatal, is one that is perhaps today believed by most. Yet for many years the doctrine prevailed that the coronary arteries were terminal arteries and that their obstruction by thrombi was necessarily fatal. It has prevailed from the time of Parry, and John Hunter's celebrated case up to a few decades ago. It was fortified especially by the teachings of Cohnheim, who from his experience as a pathologist, and as the result of his experiments on dogs, said that obstruction of the coronary arteries was always followed by death in two minutes; but Cohnheim's dictum was soon challenged both as to the necessarily fatal result of obstruction of the coronary, and that the coronaries were end arteries. Dr. LeCount has spoken to this point.

The proof that these arteries are not end arteries comes from anatomists, pathologists, experimental workers and clinicians. Anatomists proved by dissections that there were anastomoses, not negligible, not merely capillary, but sometimes visible to the naked eye, between the right and the left coronary. This was proved by various other means of examination—by Spalteholz by rendering the heart translucent, by roentgenograms of injected vessels, etc. The pathologists have seen many cases in which, as we have heard tonight, the obstruction has clearly been of long standing, a condition that could not obtain unless there were a reasonable degree of blood supply from some other source than the one coronary artery. Later experimenters have had more favorable results than Cohnheim. A few weeks ago we heard Prof. W. T. Porter of Harvard speak of his experience in Europe. Porter was one of the first who was successful in having his animals live after ligation of large coronary vessels. Our colleague, Dr. Joseph L. Miller, with S. A. Matthews, also was successful, so that now it is not uncommon for experimenters to ligate large branches of the coronary artery and have the animals live for hours, days, weeks and months. This means that the coronaries are not, in the strict sense, terminal arteries.

Clinicians have seen patients, with symptoms that perhaps necropsy would show were clearly due to obstruction of the coronary, who have lived for hours, days, weeks or months. The point, therefore, that I wish to bring out is that obstruction of the coronary artery, even of a main branch, is not necessarily fatal, and this must be due to the fact that something is in the way of collateral circulation that can take up the work of the obstructed vessel which is out of function.

As to the third point, there are certain clinical symptoms which at times permit of the recognition of the disease. I have tried to group these symptoms. Any classification must be more or less artificial, because there is certainly no hard and fast line that can be drawn between any two of these groups of cases.

The first group that I have put down as caused by obstruction of the coronary vessel is that in which death is seemingly instantaneous. These are the cases that have been described particularly by Krehl, who emphasizes the fact that there is a sudden stoppage of the heart and respiration; there is no agonal struggle, no edema of the lungs, no distortion of the features. Death seems to be extremely sudden, or, we may say, instantaneous.

A second group would be those in which there is obstruction, with heart pain; there comes sudden or early death, within a few minutes or a few hours. If the physician reaches the house in time, he sees that the patient is clearly in the death agony.

The third is the group in which the symptoms are severe, but death is deferred for hours, for days, for months, and possibly recovery occurs.

The fourth is a group that is purely hypothetic. The patient's symptoms are slight; possibly there is a slight pain. It may be passed off as a neuralgia or pleurodynia. In many

hearts there are scattered patches of fibrosis, many of which are surely due to obstruction of the twigs of the sclerosed coronary. If a large branch may cause sudden death with pain, why not a small twig produce slighter symptoms without death?

It is of the third group particularly that I am speaking tonight. These patients as a rule are from 30 to 50 or 60 years of age; some have signs of definite cardiovascular disease; some have not. Some have suffered previously from typical angina pectoris on walking, etc. In all the cases in which I have dared to venture this diagnosis, pain has been a striking feature. The patients who have previously experienced angina describe the pain in this attack as the worst they have ever had. The pain may be substernal or precordial, may be referred to the epigastric region, and may or may not radiate to the arms. It is rather diagnostic of this type that the pain has lasted longer than in typical angina. It may last a half hour, or three, four or five hours, and in one or two cases I have seen it amount to a typical status anginosus in which one severe attack succeeded another. Huchard said that in some of the cases that he describes there was no pain. Not infrequently the pain has stopped after a few hours, even though the patient lived for a long time. Often there is nausea with vomiting; the patient is frequently in a condition of collapse. A striking fact is that the mind remains clear.

The pulse is generally small in volume, though sometimes the volume is fair; it is sometimes almost imperceptible, frequently rapid, more rarely slow, frequently running, sometimes irregular. The heart tones are startlingly feeble. The blood pressure is low, and it is rather characteristic, at least of the cases going on from bad to worse, to have the blood pressure hour after hour get lower and lower. Dr. LeCount spoke of a fibrinous patch over the area of softening of the heart. Pericardial friction is not infrequently heard over the infarct in the myocardium. Twice I have heard this. If the patient lives a few days or weeks he generally shows signs of myocardial weakness. This may be extreme, as in two cases in which there resulted edema of the legs, ascites, albuminuria, etc. In other cases the symptoms are those of chronic fibrous myocarditis—dyspnea on exertion, anginal attacks, cyanosis, cough, etc.

A rather striking fact is also the acutely developing emphysema. The first case I ever saw puzzled me. There was a marvelous hyperresonant note over the chest, obscuring the cardiac dulness, and only when I looked up the subject did I find that von Basch had already described it. Frequently there are râles due to edema of the lungs. Some of the patients I have seen have impressed me not only on account of the clear mental condition in spite of the startlingly feeble circulation, but by the way in which they preserved their muscular strength. Yet in one or two I have seen an asthenia comparable in its degree to that of pernicious anemia or Addison's disease. Many attacks resemble closely a surgical subdiaphragmatic accident such as pancreatitis or perforated gastric ulcer.

I have seen one case in which I believe there was coronary obstruction with a most remarkable after-effect. A man described to me having had frequent attacks of angina after walking, for several months. One day he had a frightful attack of the character I am describing and which I thought was due to coronary obstruction. Following that he had no attack of the ordinary paroxysmal variety. I do not know how to explain that unless it is like this: I can conceive that this man had a roughened coronary vessel partially obstructed, which after the manner of intermittent claudication produced on exertion the painful seizure. Then a thrombus formed at some narrow point, and this put a certain portion of his myocordium out of function with resulting fibrosis, to which new condition the heart became accustomed and which did away with the varying and relative ischemia of the myocardium that was present when the obstruction was partial but sufficient to interfere with the blood supply adequate to meet the demands produced by exertion.

I believe it is possible in many of these cases to make a fair approximation to a diagnosis, and I have been led to that belief because in three cases in which the clinical symptoms were carefully studied, necropsy showed coronary obstruction. These were cases in which there had never been a previous attack of angina, in which there was no marked sclerosis of the beginning of the aorta; they were in three persons who had never had syphilis, and yet the coronary artery in each one was distinctly sclerosed.

At my suggestion Dr. Fred M. Smith in the Presbyterian Hospital and Rush Medical College studied experimentally the coronary arteries in dogs. He first injected the arteries of the heart. Some anastomoses could be seen with the naked eye. At times, as he injected, he could inject the right coronary from the left, or vice versa. The objection Dr. LeCount raised to many of these studies is valid. Dr. Smith tried not to use too much force, registering the pressure with a mercurial manometer. The second point he tried to establish was the mortality from ligation. His results in animals are more favorable than Dr. Porter's and compare favorably with those of Dr. Miller. Thus one dog out of eleven in which he ligated the ramus descendens of the left side died; ten lived. In the circumflex the mortality is always higher. These experiments concern acute obstructions. I believe, with Dr. LeCount, that there is a great field for experimental work in producing slowly forming obstructions.

The third point was the determination of the area of the heart muscle that became softened and later fibrous as the result of the obstruction of each artery or its branches. It was possible to produce with reasonable certainty lesions in a fairly definite area by ligation of various arteries. In general the endocardial and subendocardial changes were more extensive than those in the subepicardial tissue.

Lastly he studied the electrocardiographic changes produced by these obstructions. He took the dog's electrocardiogram before operating. Tracings were made soon after the operation to get the immediate change; then at varying intervals, from a few minutes up to hours, days, weeks and months, and the irregularities were noted. Careful study was made of the hearts of dogs dying or killed. The thought in this work has been that if it can be proved that with a certain artery obstructed there is a definite lesion in the heart muscle or in the conducting system, and if with that lesion there is a definite electrocardiogram, may it not be that when we encounter that abnormal electrocardiogram in the human being and have the symptoms suggestive of coronary thrombosis we may be able to state with a reasonable degree of certainty that the patient has had obstruction in a particular portion of the coronary system?

It takes a long time to reach any results in the human being. Patients with this condition do not present themselves very often; a large proportion with coronary obstruction die a sudden death, or are too ill to come to the office or to a hospital where they can have the electrocardiographic tracings taken. And yet we have been able to take several tracings in patients in whom we believe these coronary thromboses had occurred. And in one of the cases the patient died, having lived five months after the obstruction. The electrocardiograms turned out to be right. The necropsy revealed the lesion.

[Dr. Herrick showed lantern slides illustrating the experimental work of Dr. Smith, including tracings from dogs, which were compared with some from human beings believed to be suffering from coronary obstruction, the diagnosis in one case having been confirmed by necropsy.]

Clifford Allbutt's Views of the Cause of Angina Pectoris

DR. ROBERT H. BABCOCK: In the first place, Allbutt limits the term "angina pectoris" to Heberden's classical syndrome, and rejects the terms "true" and "false" angina, believing there is but one angina; that the other pains which are sometimes considered angina should be called spurious and mock anginas; that these pains are frequently associated with certain vasomotor phenomena which Landois and Nothnagel term "vasomotoria" and "reflectoria," terms which Allbutt rejects because calculated to obscure the subject in hand. He prefers the classification for these cases of Sir William

Gowers, that they are vascular disorders. Allbutt's view of the nature of angina is this: that the angina of Heberden is a pain located in the ascending artery, or in the supra-sigmoid portion of the ascending aorta, and that this pain is due to tension or stretching of the fibrous coat, the adventitia. Since, he says, pacinian corpuscles have been demonstrated in the fibrous coat of the artery, in this respect the pain is like the pain of intestinal colic, or any pain caused by stretching of the fibrous investment of some abdominal structure or dragging or pulling on the omentum. He believes the cause of this pain is an aortitis which may be a chronic, a subacute or an acute aortitis, or may be a chronic aortitis with acute exacerbations. He regards as the proximal causes of this aortitis the usual factors which are more or less definitely recognized in the causation of senile atheroma of the aorta or of the arteries, but especially three influences—syphilis, influenza and rheumatism. In substantiation of this view he cites almost innumerable cases illustrating the causes of angina in comparatively young people, in whom syphilis would cause aortitis. He also cites cases in young people, even in children, in the course of acute rheumatism, and one or two cases in which necropsy revealed that there was an acute aortitis in these children in addition to rheumatic infection of the heart muscle or valves.

Now he says he cannot attempt to discuss all of the eighty hypotheses of angina that Huchard had collected, but discusses the principal one, namely, coronary disease and cramp of the coronaries, spasm of the heart muscle, distention of the heart muscle, etc. In discussing coronary disease he calls attention to the fact that one might say the majority of old people show more or less coronary sclerosis after death, and yet the majority of such people never suffer from angina. On the other hand, he cites many cases of people who die, having suffered from typical angina, in whom the coronaries were not diseased at all—disease could not be found. He criticizes clinicians and pathologists alike for not investigating carefully the condition of the adventitia of the artery, saying that they usually content themselves with the statement that the aorta shows more or less sclerosis, and in syphilis they study the intima and media, but rarely, if ever, the outer coat of the artery. He doubts that the heart muscle itself is capable of pain, because the ganglions and nerves of the heart, he believes, are motor rather than sensory; nevertheless, when disease of the heart does produce pain, he thinks the pain is caused by tension of the fibrous investment of the structures of the heart. He admits that pain occurs in coronary thrombosis or coronary occlusion, believing that when pain, as Dr. Herrick has said, occurs as the result of coronary occlusion it is the result of sudden blockage; and he quotes Kaufmann that it is only sudden occlusion of a main coronary artery which produces pain. Nevertheless, he believes that the pain of sudden blockage of the coronary artery from embolism, for instance, can be distinguished, and is to be distinguished, from typical Heberden's angina, and he gives exactly the symptoms which Dr. Herrick has mentioned, not only that the pain is frequently pericardial or epigastric, but that there are certain other associated symptoms which do not properly belong to Heberden's angina, namely, dyspnea, disorders of the pulse, as Dr. Herrick has said, failing circulation, failing heart and lowering blood pressure; whereas in typical angina the pulse is rarely altered to any appreciable extent. It may be slowed a little, or increased a few beats. The blood pressure, however, is variable. In some cases it may fall; in others it remains unaltered, while in others it rises, and he cites various observations from such observers as Mackenzie that there is nothing constant in the blood pressure during angina, for it certainly does not always fall, nor are there always symptoms of collapse, edema of the lungs, vomiting, etc., as in coronary embolism. He would regard such symptoms, if they occurred, as epiphenomena and due to associated lesion. He believes the sudden death in Heberden's angina is due to inhibition, and that it is a manifestation of the impression made on the vagus by the pain. If an attack of gallstone colic can produce pain by inhibition, as he witnessed in one young woman whose heart showed absolutely no disease, then how much more easily may a diseased heart be stopped through the influence of pain on the vagus. In further corrobation of his theory he cites the pain of pericarditis, but gives cases showing that when angina has been present in cases of pericarditis that have come to necropsy sooner or later, the changes of pericarditis were found at the root of the aorta where the pericardium is reflected over the roots of the aorta. And this reminds me of the statement of Dr. LeCount that in case, as he says, the circulation at the roots of the aorta is provided by the anastomoses with other vessels, may not that very change in the coronary vessels in this situation lead to changes in the outer or fibrous coat of the aorta, which changes themselves may be responsible for the angina? I am not here to defend Allbutt's view, although I will say it appears to me as a hypothesis likely to explain the diversity of findings which are recorded, and the reason why so many investigators have such very different views concerning the nature and cause of the pain.

Allbutt rejects the theory of the angina's being due to distention of the heart muscle, citing the statements of the late John H. Musser and other authors to the effect that they had recognized cases of typical angina in which the angina totally disappeared after dilatation set in and mitral insufficiently became established, and reappeared with the return of compensatory hypertrophy. I think Allbutt would assume that in such cases the dilatation lessens somewhat the strain brought on the suprasigmoid portion of the aorta and therefore does away with such tension and stretching of the sensitive coat of this portion of the vessel as to bring about angina. He believes the theory of spasm of the heart muscle is not tenable, since, as he asks, What is systole but transient spasm of the heart muscle? Spasm of the coronaries and intermittent claudication he looks on as makeshift views to explain the great variety in the morbid anatomic changes found in the hearts to which I have alluded. In some hearts suffering with angina the coronaries were not diseased, and in others they were greatly diseased. On the whole, Allbutt, it seems to me, has presented a very strong case, and whether it answers to all cases or not, it certainly does seem to me that his views explain the overwhelming majority of cases, both in their causation and in their symptomatology, and we may say also in those measures which relieve angina.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

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1 Corpus Luteum in Ovary of Domestic Fowl. R. Pearl and A. M. Boring.—p. 1.
2 Studies on Growth of Blood Vessels in Tail of Frog Larva: Experiment on Living Animal. E. R. Clark, St. Louis.—p. 37.
3 Fate of Ultimobranchial Bodies in Pig (Sus Scrofa).—J. A. Baderscher, Bloomington, Ind.—p. 89.
4 Chondriosomes in Testicle Cells of Fundulus. J. Duesberg, Baltimore.—p. 133.
5 Position of Insertion of Pectoralis Major and Deltoid Muscles on Humerus of Man. A. H. Schultz, Washington, D. C.—p. 155.
6 Effect of Heart Beat on Development of Vascular System in Chick. W. B. Chapman, St. Louis.—p. 175.
7 Vestigial Gill-Filaments in Chick Embryos with Note on Similar Structures in Reptiles. E. A. Boyden, Boston.—p. 205.

American Journal of Diseases of Children, Chicago

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8 *Intestinal Intoxication in Infants. O. M. Schloss, New York.—p. 165.
9 Effect of Body Posture on Position and Emptying Time of Stomach. L. R. DeBuys and A. Henriques, New Orleans.—p. 190.
10 Case of Polycystic Kidney in an Infant. L. T. Royster, Norfolk, Va.—p. 196.
11 Acute Syphilitic Meningitis in an Infant Twelve Months Old. D. B. Leitch, New York.—p. 201.

8. **Intestinal Intoxication in Infants.**—Investigation of cases of intestinal intoxication by Schloss has furnished evidence which emphasizes the importance of the loss of fluid and the impaired secretion of urine. Determinations were made on thirty normal infants and on forty-six patients with intestinal intoxication. Thirty-six had acidosis and thirty-three of these showed an increase in the nonprotein nitrogen of the blood. There were, therefore, only three patients with acidosis without an increase of the nonprotein nitrogen. It is therefore apparent that infants suffering from intestinal intoxication show a marked increase of nonprotein nitrogen and urea in the blood. This increase is not due directly to increased concentration of the blood from loss of water, but to defective kidney elimination.

The renal lesions in intestinal intoxication are not sufficient to account for the impaired elimination by the kidney. It is probably due to the fact that lack of water restricts the formation of urine. This condition is probably due to the following factors which may act singly or in combination: 1. The loss of water in the stools is so great that it is impossible for the infant to ingest sufficient fluid to replace the loss. 2. The patient refuses to ingest fluid or vomits practically all that is taken. As a result the tissues become dehydrated. The retention of nitrogenous waste products and the failure of the kidney to do its part in preserving the acid-base equilibrium results from the deficient secretion of urine. The oliguria may be due to the fact that the dehydrated tissues hold as much water as possible so that none is available for the formation of urine. Other factors, dependent mainly on the loss of water, which may play a rôle are; (1) an increase in the concentration of blood colloids to such degree that their osmotic pressure is greater than the arterial pressure in the kidney; (2) a diminution in the total blood volume leading to decreased blood flow through the kidney. The symptoms of intestinal intoxication are essentially those of uremia. The two conditions are similar in all essentials. In one, defective kidney function is due to an organic lesion; in the other it results from the negative water balance and consequent oliguria. Acidosis plays a definite part in the symptomatology of intestinal intoxication, but the essential cause is probably some unknown toxic agency.

American Journal of Medical Sciences, Philadelphia

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12 *Pathologic Uterus at Menopause. C. R. Robins, Richmond, Va. —p. 313.
13 *Nature of Mononuclear Cells Seen in Exudate of Lobar Pneumonia Accompanying Typhoid. J. Forman and C. C. Hugger, Columbus, Ohio.—p. 317.
14 *Unsuspected Syphilis; Statistical Study. J. S. McLester, Birmingham, Ala.—p. 320.
15 *Spiral Fractures of Tibia; Report of Cases. C. Davison, Chicago. —p. 323.
16 Achylia Gastrica and Chronic Connective Tissue Lientery; Clinical Study of Three Hundred and Twenty-Two Cases. N. W. Jones, Portland, Ore.—p. 335.
17 *Digitalis and Control of Auricular Fibrillation and Auricular Flutter, with Electrocardiograms Illustrating Effect. R. H. Halsey, New York.—p. 344.
18 Syphilis of Lung; Report of Cases. H. Lisser, San Francisco. —p. 356.
19 Three Cases of Infection of Upper Respiratory Tract with Staphylococcus Pyogenes Aureus, Presenting Symptom Complex of Acidosis. L. U. Gardner, Boston.—p. 380.
20 Urinary Infections of Pregnancy and Puerperium. F. H. Smith, Abingdon, Va.—p. 392.
21 Simple Procedure for Preparation of Colloidal Gold for Diagnostic Purposes. O. I. Lee, New York.—p. 404.
22 Present Status of Hodgkin's Disease. A. F. Beifeld, Chicago. —p. 409.
23 Asthma Considered in Its Relationship to Vegetative Nervous System. F. M. Pottenger, Monrovia, Calif.—p. 417.

12. **Pathologic Uterus at Menopause.**—Analyzing a series of cases in which he performed hysterectomy, Robins found that 58 occurred in women who were 40 years old and over, and in all of these the complete removal of the uterus and adnexa had been practiced. In 28 of these the operation was performed for fibroids, pelvic inflammation and other conditions in which the impossibility of conserving the organs was manifest and beyond dispute. In the remaining 30, cancer was either a positive or a possible diagnosis. In 4 a positive diagnosis of cancer of the cervix, afterward confirmed by the microscope, was made and a Wertheim operation, preceded by cauterization with the Percy cautery, was done. In 26 a diagnosis of chronic metritis, including in this, induration of the cervix, was made and a possibility of malignancy considered. In practically all of these bleeding from the uterus was a prominent symptom, manifesting itself as irregular or continuous bleeding, and sometimes accompanied by marked anemia. In 2, cancer of the fundus was found on opening up the uterus.

13. **Exudate in Pneumonia of Typhoid.**—In the exudation in lobar pneumonia accompanying typhoid the mononuclear cells predominate. These mononuclear cells are classified by Forman and Hugger as: (1) lymphoid cells; (2) epithelial cells which have desquamated into the air sac; (3) large mononuclear leukocytes in abundance which contain indophenol oxydase granules; (4) large mononuclear leukocytes which are not so numerous and which do not contain the granules reacting to the indophenol blue synthesis.

14. Abstracted in THE JOURNAL, April 28, 1917, p. 1287.

15. **Spiral Fractures of Tibia.**—Davison urges the treatment of spiral fractures of the tibia by external reduction and external immobilization which, he says, usually results in imperfect union of the fragments with defective function of the leg. Treatment by open operation and autoplastic repair usually results in early good anatomic union of the fragments with restoration of the strength and function of the leg. The autoplastic transplantation of bone in the repair of a recent spiral fracture of the tibia is a capital operation, which requires careful technic, capable assistants and aseptic surroundings.

17. **Digitalis in Control of Auricular Fibrillation.**—With proper precautions Halsey believes that the following conclusions can be drawn: The gross irregularity of the ventricle in cases with fibrillation of the auricle can be controlled by digitalis if sufficient drug is administered. The patient should be instructed to continue the use of digitalis for the remainder of life, and should be taught how to determine the amount of the dose necessary from day to day to control the heart rate. Give sufficient drug to maintain the rate of the ventricle below 70 per minute when counted after a rest in the late afternoon. The fibrillating auricle under a short course of digitalis may return to normal rhythm. In auricular flutter the aim of treatment with digitalis is to produce auricular fibrillation and then control the rate of the ventricle with digitalis, hoping in the favorable cases for a renewal of normal sequential rhythm.

American Journal of Orthopedic Surgery, Boston

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Archives of Internal Medicine, Chicago

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28 Myiasis, Especially that Due to Syrphid Larvae. M. C. Hall, Detroit.—p. 309.
29 *Comparison of Functional and Anatomic Findings in Series of Cases of Renal Disease. A. Stengel, J. H. Austin and L. Jonas, Philadelphia.—p. 313.
30 *Relationship of So-Called Idiopathic Cardiopathy to Exophthalmic Goiter. D. Symmers, New York.—p. 337.
31 *Effect of Diuretics on General Blood Pressure in Animals with Constriction of Renal Arteries. E. W. Bridgman, Baltimore, and K. Hirose, Okayama, Japan.—p. 351.
32 *Physiology of Stomach. Gastric Secretion During Fever. J. Meyer, S. J. Cohen and A. J. Carlson, Chicago.—p. 354.
33 Influences of Extrarenal Factors on Renal Functional Test Meal. W. G. Lyle and H. Sharlit, New York.—p. 366.
34 *Study of Paroxysmal Tachycardia with Especial Reference to Tachycardia of Ventricular Origin. W. T. Vaughan, Boston. —p. 381.
35 *Pharmacodynamic Examination of Vegetative Nervous System in Typhoid. I. Matsuo and J. Murakami, Kioto, Japan.—p. 399.

36 Action of Tyramin on Circulation of Man. A. W. Hewlett, San Francisco.—p. 411.
37 *Loss of Water Vapor Through Skin in Infants. W. B. McClure and L. W. Sauer, Chicago.—p. 428.

29. **Functional and Anatomic Findings in Renal Disease.**—A group of thirty cases of renal disease have been studied by Stengel and his associates by certain of the recently introduced methods of renal functional testing, including the estimation of the plasma chlorids. Fifteen of these cases have come to necropsy, thus affording an opportunity of comparing the functional and anatomic findings. The cases of acute nephritis showed rather a pronounced impairment of all the renal functional tests. The cases of advanced chronic glomerulonephritis showed, in the most pronounced degree, elevation of blood pressure, depression of phenolsulphonephthalein excretion, elevation of blood urea of nonprotein blood nitrogen, fixation of urinary specific gravity and the presence of albuminuric retinitis. These cases were characterized, however, by a normal or even a definitely subnormal plasma chlorid level, and by a considerable reduction of the plasma bicarbonates. Those cases which exhibited marked tendency to proliferative changes in the glomerular tufts were characterized, as a rule, by higher blood pressure than the cases which exhibited chiefly hyaline changes in the tufts. The cases which might have been classed clinically as chronic parenchymatous nephritis or as nephroses, because of the very slight elevation of blood pressure, the less marked depression of phenolsulphonephthalein, the less marked elevation of nonprotein nitrogen and the more nearly normal urinary specific gravity, and because they exhibited conspicuous edema, especially of the face, and abundant albumin and casts of all kinds in the urine—these cases were less definitely characterized histologically than had been expected. While they showed pronounced degenerative or necrotic changes in the tubular epithelium, they also showed conspicuous, even advanced glomerulonephritis. Histologically, their separation from the clinical group of advanced glomerulonephritis would have been difficult, perhaps impossible.

Grossly, the kidneys in these cases were identical with those of the other group just mentioned. The plasma chlorids were elevated in the two cases of this group studied in this connection. The cases which clinically and histologically were cases of renal arteriosclerosis, exhibited a variety of forms of kidney, grossly, and could not have been properly classified on gross appearance alone. The blood pressure, and especially the pulse pressure, although much above normal, were usually lower than in cases of advanced glomerulonephritis. The plasma chlorids and plasma bicarbonates were normal or approximately so. In all cases with elevation of blood pressure some fall of pressure was noted in the last five or ten days before death. Contrary to expectation, however, the fall in diastolic pressure was closely proportional to the fall in systolic pressure, and not less, as would have been expected.

30. **Relationship of Idiopathic Cardiopathy and Goiter.**—The symptomatology of the condition described by clinicians as thyrotoxic cardiopathy, Symmers says, is identical with the symptomatology of the lesion familiarly known among pathologic anatomists as idiopathic dilatation and hypertrophy of the heart. The clinical features are characterized by signs of great increase in the size of the heart, with or without murmurs of relative insufficiency and with or without signs of decompensation, as shown by dyspnea, subcutaneous edema, transudation in the serous cavities, cyanosis and the like, by tachycardia, and, on occasions, by bilateral exophthalmos with or without detectable indications of enlargement of the thyroid. Thus the symptoms are largely those of the cardiopathy, and signs of thyroid disturbance, such as tachycardia, tremor, exophthalmos and enlargement of the thyroid, if present, are apt to be projected into the background rather than to assume a prominent place in the picture. Of these symptoms, the tachycardia is constant, and with the patient in bed and at rest, varies between 90 and 160 beats to the minute. Anatomically, the so-called thyrotoxic cardiopathy is characterized by great enlargement of the heart, due to dilatation and hypertrophy of all the chambers or of different combinations of chambers without valvular or pericardial, arterial, renal, pulmonary or other of the causes customarily invoked to explain enlargement of the heart. The so-called thyrotoxic cardiopathy is associated with definite structural alterations in the thyroid in the form of moderate changes in the size of the gland, overgrowth of the fibrous trabeculae, rearrangement of the architecture of the parenchyma, dependent on redistribution of the stroma, regeneration of vesicles and dilatation of the older alveoli, and variations in the amount and staining reaction of the colloid—a chronic interstitial and hyperplastic thyroiditis.

31. **Effect of Diuretics on Blood Pressure.**—Experiments were undertaken by Bridgman and Hirose in the hope of affording further light on the tenability of Traube's theory under conditions of increased functional demand on the kidney. It was thought possible that, if the renal artery were narrowed, but not occluded, and then diuretic substances administered intravenously, the compensatory nature of hypertension might be revealed. Narrowing of the renal artery without obliteration was made possible by the aluminum band of Halsted. The results of these experiments were negative. They give no support to the view that hypertension in chronic renal disease is a compensatory mechanism, brought into play when the renal arterial stream-bed is narrowed, by chemical or reflex paths, to counteract the effect on excretion of the locally diminished blood flow. Their value is only that of negative evidence in general. They do not disprove the compensatory nature of hypertension, but show that its demonstration is not to be had by the experimental method employed.

32. **Gastric Secretion During Fever.**—In a series of five experiments on two dogs in which fever was produced by nucleate and prodigiosus, and in twelve experiments on five dogs, in which a temperature elevation as high as from 105 to 112 was caused by external heat, the changes produced in the secretion caused by the injection of 1 c.c. of gastrin were striking and uniform. The volume was diminished; at times there was no secretion at all. The total and free acid were reduced. The chlorids were practically constant. The authors are of the opinion that these experiments prove that during fever produced by the injection of sodium nucleate or *B. prodigiosus*, or during temperature elevation caused by external heat, gastrin is unable to induce the normal secretion of gastric juice. The changes in the gastrin secretion are exactly the same as those found in the gastric juice secreted in response to food during fever. It is suggested that during fever, toxins are elaborated having a direct depressor action on the cells of the stomach so that they fail to react to secretory nerve impulses and secretogogues.

34. **Paroxysmal Tachycardia of Ventricular Origin.**—In eighteen cases of paroxysmal tachycardia reported by Vaughan only two, which are here reported in detail, showed a site of impulse formation elsewhere than in the auricles. Study of the literature points to the infrequency of cases of paroxysmal tachycardia of ventricular origin. To those already reported two are added. Digitalis may be an exciting cause in the production of the condition, but there must be some other predisposing factor such as ventricular hyperirritability from impaired blood supply or from some other cause.

35. **Vegetative Nervous System in Typhoid.**—In typhoid there sometimes exists striking bradycardia, even in the fever period, for which there is no satisfactory explanation. The work done by Matsuo and Murakami is an attempt at a solution of this problem through the hypothesis of Eppinger and Hess. They used typhoid patients, including seven cases of paratyphoid B, bacteriologically and serologically proved. Up to the time of examination no complication had set in. All were more than 14 years old. Patients who were in excited states were avoided. For the pharmacodynamic examination the authors used atropin, pilocarpin and epinephrin. In typhoid cases, atropin acts strongly on those patients who have marked bradycardia, but has almost no effect on those who have no bradycardia. Increase of pulse rate is the most significant atropin action; then comes increase

of thirst, and lastly palpitation. In only one case the remarkable paradoxical phenomenon, decrease of 17 in pulse rate, accompanied by arrhythmia, was observed. After injection of epinephrin, increase of pulse rate, elevation of blood pressure, acceleration of respiration and elevation of body temperature were observed in many cases. Tremor and glycosuria were often observed, but palpitation, nausea, and headache seldom. So-called dissociation of epinephrin action was observed even in cases of typhoid.

In the majority of cases salivation and sweating were observed after pilocarpin injection, besides nausea, vomiting and singultus. In only one case did the authors find a decrease of 14 in the pulse rate, accompanied by arrhythmia. This fact has never been noticed by anybody up to this time. Dissociation may be seen after pilocarpin in typhoid, but not so marked as after epinephrin. Examining the function of the vegetative nervous system in 38 cases of typhoid, the authors found 14 cases which corresponded to vagotonia, 11 cases which corresponded to sympathicotonia, 3 cases which were sensitive to all three drugs, 7 cases which were sensitive to pilocarpin and epinephrin, and 3 cases which were sensitive only to pilocarpin. In the cases with marked bradycardia, the state of vagotonia was often observed, while in those with no bradycardia, sympathicotonia was often observed. The state of vagotonia may be one explanation for bradycardia in typhoid. The deaths among these patients were all in the condition of sympathicotonia.

37. Loss of Water Vapor Through Skin.—It appears from a study of the experiments reported on by McClure and Sauer that the rate of ventilation has a decided effect on the amount of water vapor given off by the skin. This amount increases with the rate of ventilation up to a certain point, when it seems that a cooling effect prevents a further increase. Cotton garments, such as used in the authors' experiments, do not seem to offer any obstacle to the loss of water vapor from the skin; at least not when they have been in contact with the skin a number of hours. Such factors as fretfulness, crying and increase in the room temperature increase the insensible perspiration of the infant. The loss of water vapor from the skin of certain atrophic infants is relatively great. The loss of water vapor from the skin seems sufficiently great to make it an important factor in the heat elimination of the infant. Furthermore, this mechanism of heat elimination seems to possess a great degree of elasticity.

Boston Medical and Surgical Journal

March 7, 1918, **178**, No. 10

38 Some Aspects of Forensic Psychiatry. J. W. Courtney, Boston.—p. 313.
39 Treatment of Anthrax with Normal (Beef) Serum. Review of Literature; Report of Case. C. H. Hyman and T. Leary, Boston.—p. 318.
40 Diagnosis of Conditions Causing Painful and Irritable Backs. J. W. Sever, Boston.—p. 323.
41 Case of Cerebrospinal Meningitis Successfully Treated by Intraspinal and Intraventricular Administration of Antimeningitis Serum. T. A. Hoch, Waverley.—p. 327.

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42 Unnecessary Operations. G. C. Wilkins, Manchester, N. H.—p. 347.
43 Artificial Pneumothorax and Pulmonary Tuberculosis. C. Floyd, Boston.—p. 349.
44 Transfusion Experiences in Over Two Hundred Cases. A. R. Kimpton, Boston.—p. 351.
45 Surgical Treatment of Empyema. W. Whittemore, Boston.—p. 360.
46 Climate in Tuberculosis. H. F. Gammons, Carlshad, Texas.—p. 364.

Bulletin of Johns Hopkins Hospital, Baltimore

March, 1918, **29**, No. 325

47 *Ureterovenous Anastomosis; Experimental Hydronephrosis and Blood Nitrogen. M. R. Reid, Baltimore.—p. 55.
48 *Bird Malaria and Pathogenesis of Relapse in Human Malaria. E. R. Whitmore.—p. 62.
49 Physician's Aphorisms; Mediaeval Hebrew Satire. H. Friedenwald.—p. 67.

47. Ureterovenous Anastomosis.—The technic by which ureterovenous anastomosis may be accomplished successfully and leave a ureter which remains patent, is described by Read. He found that after anastomosis of the ureter into the vena cava the blood does not flow back into the pelvis of the kidney. By anastomosing a ureter into the portal or splenic vein the effect of the urine on these organs could be studied. Ureterovenous anastomosis leads to hydronephrosis unaccompanied by marked histologic changes in the kidney. The dilatation of the ureter in these cases begins at the point of anastomosis and ascends to the pelvis of the kidney. After a single anastomosis, the life of the dog, at the end of two months, remains unaffected. The urea and nonprotein nitrogen of the blood rises slightly at first but shows no tendency to increase subsequently. When both ureters have been anastomosed into the systemic venous current, the blood urea and nonprotein nitrogen continue to rise until death, about as rapidly as they do in cases of double nephrectomy. The hydronephrotic kidney secretes urine which is characterized by a low salt and a high nitrogen concentration. After double ureterovenous anastomosis the average life of the dogs in this series was six and three-fourths days. The kidneys apparently do not reduce materially the toxicity of the substances which they remove from the blood stream.

48. Pathogenesis of Relapse in Human Malaria.—Whitmore believes that in malaria the body produces antibodies which resist the multiplication of the parasites. But certain of the parasites become resistant to these antibodies (or to quinin) and continue the asexual cycle, the number of parasites, however, being too small to produce symptoms. When anything happens to lower the resistance of the body, these parasites are able to multiply rapidly and produce symptoms; that is, a relapse. The continuation of gametocytes is due to the continuation of the asexual cycle. As long as the infection continues, the body is stimulated to produce antibodies, and the infected person is resistant to superinfection; that is, there is a labile infection. There is no immunity after recovery; as soon as the infection is stopped by the antibody production, or by treatment, the stimulus to antibody production is withdrawn, and the person is susceptible to reinfection, just as though he had never been infected before.

California State Journal of Medicine, San Francisco

March, 1918, **16**, No. 3

50 Hodgkin's Disease and Its Treatment; Report of Cases. W. W. Boardman, San Francisco.—p. 125.
51 Headache Resulting from Pathologic Intra-Oral and Intranasal Conditions. A. B. Baer, San Francisco.—p. 133.
52 Treatment of Infantile Paralysis. J. Carling, Los Angeles.—p. 136.
53 Pyelograms of Tumors of Kidneys. G. MacGowan, Los Angeles.—p. 138.

Cleveland Medical Journal

February, 1918, **17**, No. 2

54 Development of Infant Welfare Centers. R. A. Bolt, Cleveland.—p. 69.
55 *Four Hundred and Forty-Three Cardiovascular Examinations at Camp Dodge. H. Feil, Cleveland.—p. 75.
56 Mental Attitude Toward Food. J. T. Smith, Baltimore.—p. 79.
57 Injuries Accompanying Labor. A. J. Skeel, Cleveland.—p. 83.
58 Chronic Alcoholism—Classification of Cases and Value of Medical Treatment. A. M. Loope, Cleveland.—p. 89.

55. Cardiovascular Examinations at Camp Dodge.—Between 25,000 and 30,000 men were sent to Camp Dodge during September, October and November, and of these 443 were referred to the cardiovascular board for defects. In the various regiments the percentages of referred examinations ranged from 0.3 to 0.6 per cent. Of these 443 cases, 163 cases were rejected (.37 per cent.). The pulse rate was taken in the dorsal and standing positions, after exercise and two minutes later. It was found that the greatest change and increase in the pulse rate was in the normal heart and in the heart bordering on decompensation. In the organically diseased hearts with marked hypertrophy and excellent compensation, the change of rate was very slight from the dorsal to the standing position, after exercising and two minutes later. The greatest differences in pulse rates were seen in the so-called nervous or irritable heart. One explanation for this phenomenon is that the reserve force of the large well compensated heart is great, provided that the musculature is not diseased and has a greater waiting force than the average normal heart. A number of cases of splendid com-

pensation were seen with lack of any discomfort on exercising. A great number of men were referred because of precordial thrills. These were found to be produced by excitable hearts, no other sign of cardiac disease being detected. It was noted that thrills were most readily appreciated by gentle pressure of the examining hand.

The majority of the irregularities were of the juvenile type, increase of rate with inspiration and slowing with expiration. This was most exaggerated in those men showing symptoms of the effort syndrome of Lewis. Extrasystoles were observed in twelve cases; of these, three were without other signs of cardiac disease, in the remaining nine physical signs of definite cardiac pathology were found. Systolic and diastolic observations were made in all cases. Observations were made usually at the end of the examination. Two cases of chronic interstitial nephritis with hypertonus were seen. Several cases of hypertonus occurred associated with cardiac hypertrophy, with shortness of breath and palpitation on exertion. Cardiac hypertrophy with no cause determinate appeared six times. Asthma was associated with cardiac hypertrophy in two cases; with hypertonus in one case. Of six cases of cardiac hypertrophy (cause not determinate) some were associated with symptoms of effort syndrome while others suffered no discomfort on exertion. One man had with his hypertrophy, marked tacchycardia with dyspnea and precordial discomfort on exercise. The most interesting sounds have been the systolic murmurs heard best at the base or at the apex not associated with other physical signs or symptoms. Three cases were seen with very loud systolic murmurs heard best over the second left interspace, very widely transmitted. These were regarded as cases of possible congenital heart disease. The cardiorespiratory murmurs have been legion, systolic murmurs in second left and right interspace heard during expiration, disappearing with deep breath. Then there is the faint systolic whiff at the apex appearing after exertion. Feil says that his limited experience with the exercise test emphasizes the need of coordinating all findings before judgment is passed on the individual heart case. The slow rate of the badly damaged but well compensated heart appeared many times. The finding of a precordial thrill not associated with other abnormalities should not be regarded as cause for rejection. Extrasystoles should not be passed over lightly in the absence of other findings.

Iowa State Medical Society Journal, Des Moines

March, 1918, **8**, No. 3

59 Organization of Effective Antituberculosis Work. D. B. Armstrong, New York.—p. 73.
60 Symptoms and Diagnosis of Sinusitis. C. M. Werts, Des Moines. —p. 78.
61 Nonoperative Treatment of Accessory Sinus Disease. H. G. Langworthy, Dubuque.—p. 83.
62 Operative Treatment of Accessory Sinuses of Nose. F. E. V. Shore, Des Moines.—p. 86.
63 End Results of Treatment of Inflammation of Accessory Sinuses of Nose. L. W. Dean, Iowa City.—p. 89.
64 Value of Hygiene and Sanitation in Camp. T. F. Duhigg, Des Moines.—p. 91.

Journal of Experimental Medicine, Baltimore

March, 1918, **27**, No. 3

65 *Cultivation Experiments on Globoid Bodies of Poliomyelitis. W. G. Smillie, New York.—p. 319.
66 *Relation of Circulating Antibodies to Serum Disease. W. T. Longcope and F. M. Rackemann, New York.—p. 341.
67 *Immunity in Intestinal Obstruction. C. A. Dragstedt and J. J. Moorhead, Chicago.—p. 359.
68 *Action of Antiseptics on Toxin of Bacillus Welchii. H. D. Taylor and J. H. Austin, New York.—p. 375.
69 *Factors Concerned in Appearance of Nucleated Red Blood Corpuscles in Peripheral Blood. C. K. Drinker, K. R. Drinker and H. A. Kreutzmann, Boston.—p. 383.
70 *Morphologic Changes in Tissues of Rabbit as Result of Reduced Oxidation. H. G. Martin, A. S. Loevenhart and C. H. Bunting, Madison, Wis.—p. 399.
71 Experimental Acute Nephritis. Study of Acidosis, Nitrogen and Chlorid Retention and Protective Action of Sodium Bicarbonate. K. Goto, Philadelphia.—p. 413.
72 *Properties of Pure Vaccine Virus Cultivated in Vivo. H. Noguchi, New York.—p. 425.
73 *Survival of Poliomyelitic Virus in Brain of Rabbit. H. L. Amoss, New York.—p. 443.

65. **Globoid Bodies of Poliomyelitis.**—Globoid bodies identical in morphologic and cultural characteristics with the organisms described by Flexner and Noguchi, have been obtained by Smillie in twenty-two cultures from the tissues of seven monkeys suffering from experimental poliomyelitis. Twenty of the strains were cultivated from the central nervous organs, all being obtained from the cerebrum except one, which was cultivated from the cervical portion of the spinal cord. Two strains were cultivated from the spleen. None of the cultivated strains inoculated produced typical poliomyelitis in monkeys. The recovery of a strain of the globoid bodies from the inoculated monkey is as difficult as is the original cultivation of the organisms from animals inoculated with the ordinary virus of poliomyelitis. Nothing in this study has served to implicate the streptococcus in the pathology of the poliomyelitic process; the streptococcus, is, however, encountered as a common contaminant or secondary invader, especially in animals which have been etherized while moribund, or which had died some hours previous to the necropsy. When the infected and paralyzed animals are killed while still strong, secondary invading bacteria, including the streptococcus, tend to be absent from the tissues.

66. **Circulating Antibodies and Serum Disease.**—Of 25 cases which were studied by Longcope and Rackemann 21 developed serum disease manifested by characteristic symptoms following intradermal injections of diluted horse serum. Of 14 cases in which the serum was tested for precipitins, 12 developed serum disease. Of the 15 patients whose blood was tested for anaphylactin, 12 developed serum disease. In 3 cases the injections of serum were not followed by serum disease. Anaphylactin could never be demonstrated in the serum drawn repeatedly from these patients. In 15 cases repeated skin reactions were made and in all of these a positive response was sooner or later observed. From these results it is evident that in the cases studied, precipitins and anaphylactic antibodies were much more likely to be found in the blood serum of patients who suffered from serum disease following the injections of horse serum than in patients who escaped serum disease. In the latter instances precipitins and anaphylactic antibodies were not observed. The skin reaction, however, made its appearance irrespective of the amount of serum administered or the method of administration and appeared whether or not serum disease developed.

67. **Immunity in Intestinal Obstruction.**—Experimental evidence secured by Dragstedt and Moorhead shows that there is no increased immunity or tolerance to intestinal obstruction after recovery from previous obstruction. Dogs recovered from intestinal obstruction are not more resistant to injections of closed loop fluid than normal dogs. Dogs injected with closed loop fluid are not more resistant to intestinal obstruction than normal dogs. In dogs the normal variation in resistance both to intestinal obstruction and to the injection of closed loop fluid is large.

68. **Antiseptics and Bacillus Welchii Toxin.**—As wounds infected with *B. welchii* are frequently encountered in military surgery today, and as the antiseptics studied are used extensively on wounds of this character, Taylor and Austin used the toxin of Bull and Pritchett and the pigeon as a very sensitive indicator of the relative toxicity of the various toxin antiseptic mixtures in a series of ten experiments. Comparable results were obtained in all. It was found that Dakin's hypochlorite and chloramin-T solutions will protect pigeons against multiple fatal doses of the toxin of *B. welchii* when the antiseptic and the toxin are mixed in vitro and allowed to stand in contact for five minutes before injection. The detoxicating action of the solutions is demonstrable also in the presence of serum. Phenol solution, 0.25 per cent., has no such action.

69. **Nucleated Red Blood Corpuscles in Peripheral Blood.**—The authors found that hemorrhage with immediate saline infusion causes the appearance in the peripheral blood of a slightly increased number of normoblasts, provided normoblasts are already present in the blood stream. Marrow hyperplasia does not intensify this reaction and the cells

found probably do not leave the marrow pulp but are in the blood stream at the time of the experiment. The slight increase in cells occurring immediately after hemorrhage and infusion is designated a pseudocrisis. True crises are much more extensive; they tend to occur just before rapid increase in the erythrocyte count and usually toward the end of the first week following hemorrhage. Red cells and white cells tend to move from the marrow together, but this association is not invariable. After repeated hemorrhages regeneration occurs independently of the appearance of nucleated red cells in the peripheral blood. Repeated hemorrhages associated with extension of erythrocyte producing marrow lead to polycythemia but not to a conspicuous increase in speed of regeneration.

70. **Reduced Oxidation.**—The results obtained by the authors are summarized as follows: Exposure of rabbits to an atmosphere of low oxygen content results in a stimulation of the cardiorespiratory systems, in an extension (hyperplasia) of red bone marrow and probably of a thyroid hyperplasia, with the further production of hydropic and hyaline degeneration in the cells of the parenchymatous organs. An atmosphere of high carbon dioxid and normal oxygen content produces, however, a stimulation of the cardiorespiratory systems, but no marrow extension and, in the concentrations used, but slight hydropic degeneration in the parenchyma of the glandular organs.

72. **Pure Vaccine Virus Cultivated in Vivo.**—Noguchi studied the effect of disinfectants on the testicular vaccine virus at different temperatures, the influence of diluents under various experimental conditions, the effects of desiccation on the virus, and the viability of dried vaccine. The virulence of vaccine virus for the testicular tissues increases until its maximum is finally reached. The testicular strain of vaccine virus has no more tendency to localize in various organs than the ordinary skin strain. Intravenous inoculation of an excessive amount of a powerful vaccine virus (1 to 2 c.c. of undiluted stock emulsion), irrespective of whether it is from the testis or the skin, will result in a generalized eruption over the entire body surface of rabbits. Subcutaneous or intravenous introduction of much smaller quantities of the virus does not cause an appreciable local or general reaction in the rabbit. Experiments on the viability and resistance of the testicular strain of vaccine virus indicate that the virus is best preserved when emulsified with Ringer's solution or 0.9 per cent. saline solution. Of the two most commonly employed chemical agents for the ripening (eliminating bacteria) process of the green vaccine pulp, glycerol and phenol, the latter is the less injurious. Phenol in concentration above 2 per cent. destroys the virus within twenty-four hours at any temperature, but it has almost no injurious effect when used in 0.5 to 1 per cent. On the other hand, glycerol is a powerful vaccinicide. When used in full strength it destroys the virus within twenty-four hours, even at 4 C. The vaccine virus retains its virulence better in a sealed tube containing either hydrogen, nitrogen, or air than in an open receptable. The virus deteriorates when placed in a sealed tube with oxygen or carbon dioxid. Desiccation decreases to a considerable degree the virulence of the vaccine virus. Iodin is a powerful disinfectant for the vaccine virus, but its sodium and potassium salts have no effect.

73. **Survival of Poliomyelitic Virus in Brain.**—The experiments recorded by Amoss provide additional reasons for concluding that the streptococcus cultivated from cases of poliomyelitis differs essentially from the filterable virus and is not the microbic cause of epidemic poliomyelitis.

Medical Record, New York

March 16, 1918, **93**, No. 11

74 **Theoretical Considerations of Mental Deficiency.** M. G. Schlapp, New York.—p. 441.
75 **Cotton-Process Ether.** W. G. Hudson, New York.—p. 446.
76 **Pyelitis.** S. S. Rosenfeld, New York.—p. 448.
77 **Nervous Diseases of Senility.** M. Neustaedter, New York.—p. 451.
78 **Historical and Biblical Data of Circumcision.** J. H. Marcus, Atlantic City, N. J.—p. 453.

Michigan State Medical Society Journal, Grand Rapids

March, 1918, **17**, No. 3

79 **Roentgenology and Internist.** C. D. Aaron, Detroit.—p. 81.
80 **Prophylaxis of Venereal Disease.** F. R. Starkey, Detroit.—p. 82.
81 **Leukemia.** C. T. Foo, St. Johns.—p. 84.
82 **What the Medical Profession Owes the Country.** L. W. Bremerman, Camp Custer.—p. 86.
83 **Tic Douloureux and Its Treatment with Review of Cases Operated on at Universal Hospital in 1917.** M. M. Peet, Ann Arbor.—p. 91.
84 **Gastric Disturbances as Part of Central Nervous System Syphilis.** L. H. Newburgh, Ann Arbor.—p. 100.
85 **Recovery of Case of Purulent Meningitis Complicating Mastoiditis.** D. O. Walthall, Ann Arbor.—p. 102.

Minnesota Medicine, St. Paul

March, 1918, **1**, No. 3

86 **Recent Views on Alimentary Disturbances in Infancy.** I. A. Abt, Chicago.—p. 81.
87 **Prevalent Physical Defects of Older Children.** A. E. Johann, Minneapolis.—p. 85.
88 **Tic Douloureux and Its Treatment.** C. R. Ball, St. Paul.—p. 91.
89 **Shorter Isolation Periods in Infectious Diseases.** H. W. Hill, London.—p. 98.
90 **General Practitioner: His Field and Fees.** W. J. Richardson, Fairmont.—p. 99.

Missouri State Medical Association Journal, St. Louis

March, 1918, **15**, No. 3

91 **Problem of Feeding Young in Wartime.** E. W. Saunders, St. Louis.—p. 73.
92 **Urogenital Tuberculosis.** C. Capell, Kansas City.—p. 77.
93 **Some Disadvantages of Upright Posture.** A. G. Pohlman, St. Louis.—p. 80.
94 **Toxemia of Pregnancy.** J. D. James, Springfield.—p. 86.
95 **Under What Circumstances Should a Patient with Pulmonary Tuberculosis Be Advised to Change Climate?** J. W. Bolton, Warrensburg.—p. 87.
96 **The Loyal Physician.** E. L. Rhodes, Lincoln.—p. 89.
97 **Case of Congenital Scrotal Anus.** J. R. Bruce, Marshfield.—p. 90.

Modern Hospital, St. Louis

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98 **Hospitals for Communicable Diseases.** R. E. Schmidt, Chicago.—pp. 153.
99 **University Training for Navy Hospital Corps.** W. Connely.—p. 159.
100 **Placement Bureau for Handicapped.** R. Jones, Cincinnati.—p. 165.
101 **Hospital Field in Figures—Survey of Conditions as They Actually Exist.** H. T. McClure.—p. 169.
102 **Contagious Ward of Morristown Memorial Hospital, Morristown, N. J.** S. S. Goldwater, New York.—p. 171.
103 **Refrigeration for Institutions.** G. H. Wheeler, Brunswick, N. J.—p. 173.
104 **New Nurses' Home for Ninnequa Hospital, Pueblo, Colo.** R. W. Corwin, Pueblo, Colo.—p. 176.
105 **Standardization of Hospitals—Classes XIV, XV and XVI, Institutions for Nervous and Mental Diseases.** J. A. Hornsby and Others.—p. 178.
106 **Bookkeeping for Small Hospitals and Allied Institutions.** H. K. Carter and C. A. Porter.—p. 182.
107 **Present-Day Conditions Applying to Purchase of Hospital Supplies.** G. W. Wallerich, Chicago.—p. 196.

New York Medical Journal

March 16, 1918, **107**, No. 11

108 **Treatment of Croupous Pneumonia.** R. F. Ives, New York.—p. 481.
109 **Operative Procedure for Relief of Contracted Eye Sockets.** F. Allport, Chicago.—p. 484.
110 **Fortifying Child Against Mental Disorders.** E. S. Elwood, Albany.—p. 486.
111 **Wassermann Complement Fixation Test for Syphilis.** J. W. Smith, Jr., New York.—p. 489.
112 **Differential Blood Count.** Arneth Formula and Dochle's Inclusion Bodies in Pulmonary Tuberculosis. R. W. Bachman and B. H. Lucke, Philadelphia.—p. 492.
113 **Present Status of Local Application of Radium and Roentgen Rays.** W. A. Weed, Birmingham, Ala.—p. 495.
114 **Shoes, Physiologic and Therapeutic.** D. D. Ashley, New York.—p. 498.
115 **Case of Calculi in Urinary Bladder.** A. Peskind, Cleveland.—p. 502.
116 **Status of Abortionist in Modern Social Order.** R. H. MacNair, Springfield, Mass.—p. 503.
117 **Drug Addiction. Recommendations of Public Health Committee.** C. L. Dana, New York.—p. 504.
118 **Clinical Types of Localized or Partial Tetanus.** C. G. Cumston, Geneva, Switzerland.—p. 505.
119 **Methods of Prevention and Control of Disease in War Industries.** J. W. Schereschewsky, Washington, D. C.—p. 506.
120 **Medical College Training for Navy Hospital Corpsmen.** W. Connely, Minneapolis.—p. 507.

Oklahoma State Medical Association Journal, Muskogee

March, 1918, 11, No. 3

121 Gastric Ulcer. J. A. Westfall, Supply.—p. 81.
122 Instruments of Precision in Diagnosis. Thermometer. G. F. Garrison, Oklahoma City.—p. 84.
123 Foreign Bodies in Air Passages. E. S. Ferguson, Oklahoma City. —p. 85.
124 Diagnostic Value of Nystagmus. A. L. Guthrie, Oklahoma City. —p. 91.
125 Purpura Hemorrhagica; Report of Case. W. W. Taylor, Oklahoma City.—p. 92.
126 Case of Complete Bony Obstruction of Both Nares. W. H. Rutland, Altus.—p. 98.

Southwestern Medicine, El Paso, Texas

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127 Conservation of Hearing. G. K. Angle, Albuquerque, N. M. —p. 1.
128 Expert Testimony, or Opinion Evidence. W. Wylie, Phoenix, Ariz. —p. 6.
129 Lobar Pneumonia. G. Werley, El Paso.—p. 12.
130 Pyelocystitis in Infancy and Childhood. J. A. Rawlings, El Paso. —p. 18.
131 Liquor Calcis in Fractures. E. D. Strong, El Paso.—p. 22.

Wisconsin Medical Journal, Milwaukee

March, 1918, 16, No. 10

132 Mental Hygiene Movement and Psychiatry. W. F. Becker, Milwaukee.—p. 379.
133 Surgical vs. Medical Treatment of Goiter. E. V. Smith, Fond du Lac.—p. 388.
134 Differential Diagnosis of Forms of Goiter. J. F. Pember and T. W. Nurum, Janesville.—p. 392.
135 Chronic Nonsurgical Pyelitis; Its Etiology and Treatment. J. C. Sargent, Milwaukee.—p. 400.
136 Ambulatory Automatism. H. W. Powers, Milwaukee.—p. 404.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Feb. 23, 1918, 1, No. 2982

1 *Penetrating Wounds of Brain. H. Cushing.—p. 221.
2 *Extraction of Foreign Body from Brain with Aid of Roentgenoscopy. H. H. Rayner and A. E. Barclay.—p. 226.
3 Influence of Muscular Exercise on Longevity. H. Weber.—p. 228.
4 Thigh Stump Extension Splint. W. E. Fisher.—p. 229.

1. Penetrating Wounds of Brain.—The net results of Cushing's study of head cases admitted to three contiguous hospitals during a period of three weeks were as follows: Taking as 100 the total number of cases admitted with an initial diagnosis of some form of "head wound," the percentage with dural penetration was 23.5. Taking the verified cases alone the percentage with dural penetration was 49.3. Of these 49.3 per cent. verified cases approximately one third died without operation, their injuries being either of extreme gravity or multiple. Of the remaining two thirds, all were submitted to operation, and exactly half of the patients subsequently died, thus giving the generally accepted 50 per cent. operation mortality for wounds of this type. For comparison the following figures covering the whole three months may be given for the cases that came under the supervision of Dr. Cushing's team. Of the cases submitted to operation, 10.9 per cent. proved to have merely scalp wounds, 23.7 per cent. cranial wounds with intact dura, 60.7 per cent. cranial wounds with dural penetration and 4.5 per cent. bursting fractures of the cranium but with the scalp and dura both intact. During the initial two weeks the operation mortality for the author's own team was above the average figure for all the hospitals together. This may be accounted for in some measure by the fact that during this period, as also during the entire three months, wounds of the more serious type were deliberately selected from among the cases retained at the hospital. This is indicated by the relative height of the percentage of cases with dural penetration (60.7) as compared with the corresponding percentage (49.3) for the whole of the verified cases during the first two weeks.

Of 225 cases, 6 patients died without intervention, the remaining 219 were operated on, and 133 proved to have dural penetration. The net results are best shown by dividing these 133 cases into thirds roughly corresponding with each consecutive month of service. First, 44 cases with 24 deaths = 54.5 per cent.; second, 44 cases with 18 deaths = 40.9 per cent.; third, 45 cases with 13 deaths = 28.8 per cent. These percentages are practically end results, for no cases were evacuated until they had passed the stage of conceivable complications, and Cushing believes they are sufficiently encouraging to justify the hope that a still further lowering of the mortality may be attained, and that in an advanced hospital 75 per cent. of recoveries is not too large a figure to be set as a goal. During the three month period an operation, with certain technical devices applicable to the average penetrating wound, was gradually evolved. Aside, possibly, from the principle of track suction there is nothing original about the procedure, nor are the instruments new.

The main features of the procedure lie: 1. In the removal en bloc rather than piecemeal of the area of cranial penetration. 2. In the detection of the indriven bony fragments by catheter palpation of the track rather than by the exploring finger. 3. In the suction method of removal of the disorganized brain, thereby cleansing the track of the so-called pulped or devitalized tissue, whose retention, as is the case with dead tissue anywhere, favors infection. 4. In the use of dichloramin-T in oils as an antiseptic particularly suitable for infections in the central nervous tissues. In addition to these more essential features of the performance, the routine preoperative neurologic study of the case stereoscopic roentgen-ray negatives, the shaving of the entire scalp, the invariable use of local anesthesia, preferential radial (tripod) rather than flap incisions, foreign body extraction with the magnet when possible, closure of the wounds with buried sutures in the galea, the dressing of all serious cases in the operating room rather than in the wards, all these steps, though less novel, Cushing says, were, nevertheless, contributory to the successful outcome of the more severe cases.

2. Extraction of Foreign Body from Brain.—The extractor used by Rayner and Barclay is made like a pair of dental forceps, the jaws being about 1 ½ inches apart when closed. Above the jaws is fitted a small fluorescent screen. Beaks or blades are fixed at right angles to the jaws and meet at the points, but are insulated from one another by a small fiber block let into one of the blades, which is made slightly longer than the other. For brain work the blades are thin and close together, the point of the longer blade being rounded. For the removal of foreign bodies from ordinary tissues stronger blades are used, the point being fashioned like a blunt dissector so that the instrument can dissect, and, by opening the blades, separate its own way down after the skin incision has been made. The blades are connected with an electric bell through a relay that is specially fitted in order to avoid stimulation of structures when contact is made. When the blades are brought into the correct relationship with the foreign body, that is, with the longer blade alongside and the shorter blade touching the top of the fragment—contact is made and the bell rings. This indicates that by raising very slightly and opening the blades the foreign body can be picked up without any intervening structures being also caught. Protection, additional to that of the diaphragm, tube, box, etc., is afforded by a sheet of heavy roentgen-ray proof rubber with a 3-inch hole in it that is placed either above or below the patient.

Glasgow Medical Journal

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5 Antenatal Treatment of Congenital Syphilis with Salvarsan. L. Findlay.—p. 65.
6 Origin and Progress of Glasgow and West of Scotland Corporation of Trained Nurses. D. Newman.—p. 74.
7 *Case of Metastatic Cancer of Bone Marrow without Erythroblastic Reaction. W. R. Jack and J. H. Teacher.—p. 81.

7. Metastatic Cancer of Bone Marrow Without Erythroblastic Reaction.—A man, aged 58 years, was admitted to the hospital with a history of pain in the stomach, nausea, vomiting and occasional attacks of diarrhea of two years' duration. His family history was negative. He had had no other illnesses but those of childhood, and he had suffered

two years previously from a fracture of the right femur, which had healed normally. About that time, or shortly afterward, he began to complain of abdominal pain coming on soon after food, and followed by vomiting, the food coming up in mouthfuls without much feeling of sickness, and having a very bitter taste. He never vomited either blood or "coffee-ground" material. These symptoms were accompanied by loss of flesh and strength, and by occasional sharp attacks of diarrhea, the stools, however, never being noticeably dark. As his condition rapidly deteriorated, he was operated on a year ago. A large malignant tumor was found in the stomach. As it was inoperable, a gastro-enterostomy was performed, and from this he got some relief for a time, although his pain after meals never entirely disappeared, and ultimately became severe enough to keep him from eating in spite of a craving for food. It was always relieved by vomiting, and was localized to the upper epigastrium. Emaciation also rapidly progressed.

At the time of the second admission no definite tumor could be palpated, but there was distinct rigidity of both recti, and in the middle line just below the xiphoid cartilage there was a localized area highly tender to palpation. No dilatation of the stomach could be made out. Neither liver nor spleen was enlarged; no enlarged glands were to be found in the neck; and the urine was normal. Gastric analysis after a testmeal revealed an almost complete achylia, the total acidity being 2, with no free hydrochloric acid, and only a trace of lactic acid. His condition went from bad to worse, and about ten days after admission he began to complain of pain over the lower end of the sternum, where pressure on the bone elicited tenderness. A little later he had also pain in the back, in the region of the lumbar vertebrae. As bony metastases were suspected, the blood was examined. The red cells numbered 3,390,000 per c.m., the white cells 15,000; hemoglobin 45; color index 0.67; moderate poikilocytosis; no nucleated red cells nor polychromatophilia. The blood picture was that of an anemia of the chlorotic type, with no evidence of erythroblastic reaction. The bone pains increased in severity, and were also felt over the lower ribs on the left side. He gradually sank, and died four weeks after admission.

Postmortem examination: The pyloric region was occupied by a tumor about the size of a tennis ball, which completely encircled the organ. Several glands were invaded by tumor close to the primary growth. No obstruction of the bile ducts. Bones: There were a number of small secondary tumors in the lower part of the sternum, and another in the lower part of the manubrium sterni. There was a large mass occupying about 3 inches of the eighth rib which had extended into the pleural membrane over a considerable area. The fourth right and seventh left ribs were easily broken owing to the presence of tumor; the other ribs were quite strong. There was an old fracture about the junction of the upper and middle thirds of the right femur. This was not due to tumor. The marrow in the middle of the left femur was fatty, with one small red area which appeared to be a tumor. There was, therefore, no marked erythroblastic reaction. There were a few small nodules in the tenth and eleventh vertebral bodies, and there was a marked osteo-arthritic thickening between the eleventh and twelfth vertebral bodies.

Journal of Tropical Medicine and Hygiene, London

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8 Castellani's Absorption Test: Its Technic and Applications. F. E. Taylor.—p. 37.
9 Case of Antimony Poisoning. A. Breinl and H. Priestley.—p. 38.

Lancet, London

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10 Treatment of Foreign Bodies in Lower Air Passages and Esophagus. H. Tilley.—p. 283.
11 Carriers of Meningococcus. P. W. B. Smith, G. R. Lynch and S. Mangham.—p. 290.
12 Relative Advantages and Disadvantages of Stiff Leg. A. Lane.—p. 292.
13 Splints. P. L. W. Williams.—p. 293.
14 Case of Gonorrheal Keratodermia. H. M. M. Woodward.—p. 294.
15 Case of Oriental Sore. C. R. C. Lyster and W. H. McKinstry.—p. 294.
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22 Eye-Strain; Condition of Blepsopathia. H. A. Des Voeux.—p. 327.
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25 Ministry of Health. A. M. Fraser.—p. 344.

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26 Relation of Alcohol to Mental States, Particularly in Regard to War. R. A. Jones.—p. 201.
27 Differential Stethoscope as Aid to Diagnosis of Myocardial Changes. O. Leyton.—p. 224.
28 Recent Work in Nervous Diseases. H. C. Thomson.—p. 235.
29 Retrospect of Otology, 1917. M. Yearsley.—p. 242.
30 Carcinomatous or Sarcomatous Pericarditis with Note on Analogous Diffuse Carcinomatous or Sarcomatous Inflammation of Other Serous Membranes (Peritonitis Carcinomatosa, etc.). F. P. Weber.—p. 246.
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34 Case of Mirror Writing; Literature. J. L. M. Symns.—p. 283.
35 Three Cases of Beriberi Following Relapsing Fever and Due to Prolonged Feeding on Condensed Milk. K. Yacoub.—p. 290.
36 Cure of Spinal Concussion in Warfare by Suggestion. A. F. Grimbly.—p. 292.
37 Trials for Surgeon Pioneer. D. T. Barry.—p. 293.

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38 Thrombosis. M. Takeuchi.—p. 5.

Bulletin de l'Académie de Médecine, Paris

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39 *Unprecedented Results of Army Surgery During Recent Offensive. T. Tuffier.—p. 112.
40 Influence of Chemical Composition of Drinking Water on Proliferation of Paratyphoid B. Bacilli. Daumézon.—p. 116.
41 *Palpation of the Cecum. L. Pron.—p. 119.
42 *Intermittent Reunion for Infected Amputation Stumps. H. Chaput.—p. 121.

39. Summarized in Paris Letter, p. 796.

41. **Palpation of the Cecum.**—Pron gives his conclusions from palpation of the cecum in 123 subjects. It was palpable in about 50 per cent., and there was pain on pressure in some others, so the cecum was found abnormal in 63 per cent. It varied in shape, place and consistency at different hours in the same subject, but a direct connection was apparent between the pain that could be induced in the cecum and abnormal conditions in the liver. In 50 patients with some form of liver trouble, the cecum was palpable or painful in 32. Still more significant is the finding of abnormal conditions in the cecum in 72 out of 108 cases of stomach disease with objective findings. Hence the discovery of a palpable cecum or pain on pressure should attract attention to the liver or stomach. As sounds of fluid contents can be heard in the cecum even during prolonged constipation, there is a possibility that the cecum is an organ with a secretion of its own.

42. **Intermittent Reunion of Infected Amputation Stumps.**—Chaput expatiates on the advantages of exposing the infected stump to the air during the day, turning the flaps of soft parts back and fastening them to expose the stump to the air as it rests on a pad. At night he restores the flaps to place, over capillary drains or sheets of rubber tissue, holding the flaps in place with plaster strips. Traction is applied to them as soon as the infection is conquered. Healing has been complete in two or three weeks as a rule with this technic as applied in several cases.

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43 Edema of Arm After Chest Wound. V. Combier and J. Murard.—p. 1219.
44 *Record of Arterial Pressures. J. A. Barré.—p. 1222.
45 *Epididymitis After Meningitis. S. Costa and J. Troisier.—p. 1227.
46 *Parameningococci in Eastern Front. M. Bloch and P. Hébert.—p. 1229.
47 *Agglutination Differentiation of Meningococci. Netter.—p. 1231.

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48 *Frequency of Infectious Antecedents in War Tachycardias. O. Crouzon and N. Mauger.—p. 1237.
49 *Uremia with Asystoly. O. Josué and M. Parturier.—p. 1244.
50 Cancer of Liver in Young Man. De Massary.—p. 1252. Menetrier.—p. 1255.
51 The Cerebrospinal Fluid in Diphtheric Paralysis. Lortat-Jacob and G. L. Hallez.—p. 1259.
52 Inflammation of the Esophagus. F. Ramond, P. A. Carrié and A. Petit.—p. 1263.
53 Emetin Eruption. G. Railliet.—p. 1266.
54 Crescent Forms of Malarial Plasmodia. Deglos and Chaspoul.—p. 1268.

44. **Record of the Pulse.**—Barré has combined the Marey plethysmograph with the Vaquez sphygmotensiometer and uses two pneumatic cuffs, one just below and one just above the elbow. The elbow and wrist rest on cushions so that neither cuff touches the table. He gives illustrations and tracings and tells how to interpret the record to determine by the tracing the exact maximal and minimal pressure.

45. **Epididymitis after Meningitis.**—The meningitis had been caused by a parameningococcus resembling the gonococcus in its fermenting capacity.

46 and 47. **Parameningococci.**—Bloch and Hébert relate that in the cases of epidemic meningitis on the eastern firing line parameningococci are often found. They agglutinate specifically and yield only to a bivalent antiserum. Netter's experience also emphasizes the efficacy of polyvalent antiserums.

48. **Infectious Antecedents in War Tachycardias.**—Crouzon and Mauger state that in ninety-six cases of tachycardia in soldiers on active service they found over 50 per cent. with a history of typhoid, acute articular rheumatism or other infectious disease, nearly all before the war. In four other cases the tachycardia developed after gassing; in four after concussion, and in two after a wound of the chest. Dumas, in the discussion that followed, remarked that he had sometimes found tachycardia an early symptom of pulmonary tuberculosis. He added that some of the candidates for the aviation course came from the front with tachycardia, but it subsided under rest and restriction of tobacco and alcohol. The men were anxious to get to flying and they usually threw off the tachycardia. The power of psychic influence is well shown, Josué added, by the tachycardia that develops in men being examined for the aviation course; it develops solely, he declares, from the candidates' fear of being rejected.

49. **Uremia from Cardiovascular Causes.**—Josué and Parturier describe two clinical cases which confirm their previous statements that oliguria for which the heart is responsible may entail uremia of 1 gm. or thereabouts and realize the clinical picture of uremic intoxication. By measures to induce polyuria all the uremic symptoms disappear. There may even be a relative oliguria with apparently ample diuresis, that is, although the output of urine may be considerable, yet it is less than the amount required for complete excretion of the urea. In both forms polyuria must be induced as the primal indication. With a damaged kidney, the prognosis depends on the ability of the heart to maintain the compensating polyuria, so that, as they say, the future of the *brightique est dans la résistance de son myocarde*. When the urea was in the blood in proportions above 1 gm., they never were able to increase the diuresis, and the uremia continued a progressive course. With uremia from oliguria in a patient with asystoly, digitalis must be given freely to bring on the liberating polyuria. The urea content of the blood then drops to normal. In one of the cases described there was albuminuria, Cheyne-Stokes breathing, high blood pressure and aortic stenosis, but all the symptoms melted away when the polyuria set in. Theobromin was then given with the digitalis to keep up the diuresis.

Le Nourrisson, Paris

January, 1918, 6, No. 1

55 *Meningitis in Infants. G. L. Hallez.—p. 1.
56 *Habitual Constipation in Infants. H. Dorlencourt.—p. 20.
57 Gelatin Tannate in Diarrhea. E. Choay.—p. 41.
58 Commercial Modifications of Cow's Milk. A. B. Marfan.—p. 43.

55. **Meningitis in Infants.**—Hallez has been making a special study of the reasons why serotherapy of meningitis so often fails, especially in infants. The main cause is that the meningitis develops as in an enclosed cavity. Marfan calls this type of cases *méningite cérébro-spinale cloisonnée, avec épendymite, évoluant en cavité close*. Chiray has described such cases in adults, grouping them as *pyocéphalie*. In another group of cases the meningitis may be accompanied with hydrocephalus, or there may be ependymitis with posterior basilar meningitis, or encysted meningitis at different points. Hallez reviews the literature on these four main types of meningitis, and describes the clinical picture with each in infants. He has encountered twenty-four cases of the partitioned-off type, nine in young adults, two in girls of 11 and 13, and thirteen in infants from 2 to 24 months old. The return of symptoms after they had subsided under serotherapy, the taut and protruding fontanel, which does not relax after lumbar puncture, the emaciation, and the alternation of redness and pallor in the skin, eruptions and profuse sweats or abnormal dryness of the skin suggest that the meningitis is developing in some enclosed cavity. The infant's torpor is interrupted by moans and cries, except when feeding—all signs of the localization in the ventricles and excessive pressure. Hearing or vision may be materially impaired. The motor disturbances may include a tetaniform stiffness and a variable degree of paresis, with or without tremor in respose. Convulsions are rare, but monoplegia of a plastic type has been encountered. If the ventricles contain pus, the temperature may run up again.

Lumbar puncture is instructive by the negative findings in the fluid, the approximately normal fluid contrasting with the aggravation of the clinical symptoms, or there may be very little fluid in the spinal canal, or it may show that the antiserum injected two or three days before was not absorbed. The decisive sign is the difference between the comparatively clear spinal fluid and the purulent fluid that can be aspirated from the ventricles. He has never found percussion of the skull instructive. Injection of fluid into the spinal canal in an amount equal to or surpassing the amount withdrawn is liable to bring on convulsions as the usual safety valve is lacking. The spinal meningitis may have been so insidious and so slight that it escaped detection; this type is particularly liable to involve the ventricles as the serotherapy is not applied early, and hence the disease gets a good start.

Treatment is by direct injection through the fontanel into the ventricles of a polyvalent antiserum while the same is injected into the spinal cavity to ward off further localization of the meningitis. When bacteriologic examination has revealed the special germs involved, then the specific antiserum can be used. After the lumbar injection, he raises the pelvis so that the fluid can lave the higher centers. Ramond advises also turning the child on its stomach for twenty or thirty minutes so that all parts of the cerebellum, etc., can be laved. The same doses of the antiserum can be given for three or four days. Injection directly into the ventricle is simple and easy in infants. The needle is introduced in the outer corner of the fontanel, about 2.5 cm. from the median line. Hallez has done this himself and seen it done numbers of times for meningitis or hydrocephalus and has never witnessed the slightest mishap from it. The needle is pointed at the auditory canal of the ear on the other side, slanting it at an angle of about 20 degrees; it is pushed in from 2 to 4 cm., thus usually piercing the second frontal convolution. When the cavity of the ventricle is reached, fluid escapes from the needle. He generally aspirated 30 or 60 c.c. and then injected 20 or 30 c.c. of the antiserum without modifying the direction of the needle. These injections can be repeated for several days. It seems best to inject the antiserum into both ventricles.

This method of treatment has been applied generally only as the last resort, and consequently few were saved, none in Netter's eleven cases and only four of Hallez' eleven, but with earlier recognition of the partitioning-off of the meningitis, better results may be anticipated. Lesage advocates an injection into each ventricle, from the first along with the intraspinal injection, as a routine measure and reports excellent results in two cases. It is possible that vaccine therapy might prove effectual when there are multiple foci. In a case reported by Suner no fluid escaped from the ventricle when the needle was introduced, but still he injected the antiserum. Necropsy showed that the meningitis had been restricted exclusively to the base of the brain.

56. **Habitual Constipation in Infants.**—Dorlencourt restricts his discussion to infants fed exclusively on milk, breast or bottle. He regards an infant with one stool a day as already subject to a certain degree of constipation. Two or three days without a passage is confirmed constipation. He insists that a purgative or laxative should never be given except as the last resort. Enemas may be useful in certain cases. They should always, he says, be given hot, and composed of physiologic serum, an emulsion of oil, or pure oil. They are contraindicated with atony of the bowel as they would only increase it, while frequently repeated lavages would deprive the mucosa of its last traces of sensibility. In this case they should be used cold and of small volume. Whatever the type of constipation, enemas should never be allowed to become a regular practice.

He emphasizes the necessity for differentiating the cause in order to apply proper treatment. In the constipation connected with atony, all measures to stimulate the organism should be applied, including general salt baths followed by rubbing with alcohol (or a very little turpentine) and massage of the abdomen. When the atony seems to be due to weakness of the reflexes, and this is traceable to anesthesia of the mucosa, immediate and often remarkable results can be obtained by introducing into the rectum a blunt tipped cannula or glass stirring rod. This is left in contact with the mucosa for a few minutes, moving it around a very little. The mere presence of this foreign body, its light rubbing of the mucosa, usually entail an evacuating reflex. This simple procedure can be tried in all forms of constipation, and has numerous advantages over other measures for the purpose. When the constipation accompanies a large flabby abdomen, the child should wear constantly a broad flannel abdominal band, extending up on the chest. In the forms of constipation with signs of hypertonicity, instead of salt baths the child should be given tepid baths and have hot compresses applied to the abdomen for several hours during the day. With both atony and hypertonus, the children should be kept out of doors. He adds, *les promenades au grand air stimulent les atoniques, calment les nerveux.*

The passage of hard feces causes erosion of the mucosa of the anus, and the pain from this causes the child to repress desires to defecate, or may induce spasm of the sphincter. Silver nitrate will help cure the fissure and treatment of the constipation will break up the vicious circle. He reiterates that laxatives do not cure constipation and they are liable to bring on a diarrhea worse than the constipation or they may be followed by aggravation of the constipation. Marfan's choice is sodium citrate; it can be given up to 1.5 to 2 gm. a day without harm. Calomel should never be used for constipation in infants. He has known it to bring on severe acute dysenteriform enterocolitis. When the constipation is the result of hypertonus or spasm, belladonna may be indicated. Dorlencourt gives it in pulverized form, 0.004 gm. per year of age, with some mild laxative such as podophyllin. He warns against combining it with magnesium salts as their action is exactly opposite.

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59 *Administration of Epinephrin. G. Milian.—p. 81.
60 *Syphilitic Primary Lesion. E. Bodin.—p. 87.
61 *Localization of Syphilis Lesions. Lacapère and Laurent.—p. 94.
62 *Febrile Reactions to Arsenobenzol. Goubeau.—p. 97.
63 Skin and Venereal Disease in Battalion. M. Pinard.—p. 102.
64 *Chancriform Gonorrheal Ulcerations. R. Burnier.—p. 104.
65 Professional Inoculation of the Finger with Soft Chancre. G. Milian.—p. 107.
66 Jaundice After Galyl Treatment of Syphilis. Veillet.—p. 109.

59. **Administration of Epinephrin.**—Milian has been preaching since 1913 that epinephrin properly administered will ward off and cure all disagreeable or alarming by-effects of treatment with salvarsan and its substitutes. A number of clinicians have confirmed the efficacy of epinephrin in this line, but still it does not seem to be as generally known as it should be. The French dispensatory specifies only homeopathic doses, not over 1 mg. in the twenty-four hours. Martinet advocates up to 2 mg. in twenty-four hours, testing the tolerance, but Milian asserts that he has given 2, 3 and even 4 mg. of epinephrin within a few minutes, to ward off the threatening immediate or tardy dangerous congestion from the salvarsan. The intravenous route should be reserved for serious emergencies, and a small dose, amply diluted, should be the rule, for example, 100 c.c. of artificial serum containing 0.1 mg. of epinephrin. This solution arrested at once an asthmatiform nitritoid attack, with no objective by-effects beyond slight pallor of the face and rapid rise in the blood pressure. There was no tachycardia until after a second injection of half the dose.

Milian's extensive experience has confirmed the advantages of giving epinephrin before the salvarsan. To ward off the reaction to the intravenous injection of the salvarsan (fever, headache, vomiting, diarrhea, etc.) he gives 2 mg. of epinephrin in a little water by the mouth one hour before and repeats it five minutes before the injection and again an hour after it. It is also advisable to give 1 mg. by the mouth morning and evening on the four following days, when the patient is inclined to be intolerant to salvarsan. To ward off the immediate nitritoid crises (congestion of the face, vomiting, distress, etc.) he gives in the place of the dose by the mouth, five minutes before the injection, a subcutaneous injection of 1 mg. of epinephrin and an intramuscular injection of 0.5 mg. The signs that the patient is duly under the influence of the epinephrin are the blanching of the face—the leukoreaction, he calls it—the rise in the arterial pressure, tachycardia and generalized tremor. The pallor of the face is the most instructive of these signs. When salvarsan serous apoplexy has developed, the doses must be large enough to be promptly effectual. In a typical case described, a frail man of 32 with syphilitic perforation of the palate had been given 0.45 gm. novarsenobenzol by the vein. During the third night thereafter, agonizing headache developed suddenly, and the intern gave 0.25 mg. epinephrin by the mouth. By morning the man was unconscious, the eyes open, temperature 39.5 C. (103 F.), and 2.5 mg. epinephrin were given by the mouth. This induced some improvement but he still lay motionless an hour later, the eyes open but no movement of the eyeballs and no winking. Then 1 mg. epinephrin was injected intramuscularly and 0.5 mg. under the skin, and in a minute the man seemed to come to life again, looking around, drawing up the bedclothes, etc. Milian suggests that extracts of other glands with an internal secretion might advantageously supplement epinephrin. It is possible that the glands along the sympathetic system have a special action on the circulation in their special region. Epinephrin displays something of this specialized action, as it does not seem to have much influence on the cerebral vessels and the coronaries while it acts strongly on the neighboring aorta. The pituitary body may perhaps, have more control over the cerebral and coronary arteries.

60. **Diagnosis of Syphilitic Primary Sore.**—In Bodin's experience, the primary lesion was multiple in about 20 per cent. of his cases; there were eleven chancres in 2, and one case each had seven and ten. In some of these cases preceding scabies in the region offered numerous portals of entry for the spirochetes, and the primary lesions developed simultaneously; in other cases they developed in series. In some cases the chancre spread over an extensive area, the aspect that of a large infected wound, sometimes gangrenous. In 4 of his 627 cases the primary lesion was only 2 or 4 mm. in diameter, but the glands were enlarged even beyond the

average. In 2 cases the base of the chancre was soft but the swarms of spirochetes confirmed the diagnosis. The glands were enlarged in all but 3 of his 627 cases; in 5 the adenitis suppurated. In 12 the chancre was in the meatus or urethra; in 67 cases phimosis masked the chancre; in 8 cases soft chancre complicated the primary lesion. He warns further that herpes lesions may become indurated after application of caustic drugs; only the history of the case will clear up the diagnosis.

61. **Influence of Trauma in Localization of Syphilitic Lesions.**—Lacapère and Laurent relate that in their forty cases of gummatous syphilitic lesions treated at the dispensary at Fez, Morocco, in fourteen cases the gummas were on the forehead. This can be explained only by the predisposing influence of the trauma when the men kneel in prayer according to the Mohammedan custom, with the brow resting on the stone floor of the mosque. Five times a day the faithful thus prostrate themselves from ten to twenty minutes, and their brows show the effects of this frequent prolonged contact with the stone floor.

62. **Febrile Reaction in Treatment of Syphilis.**—Goubeau explains that fever developing within a few hours after the injection of arsenobenzol is connected with the syphilitic infection itself, and is a sign of its activity and intensity. It is equivalent to a positive Wassermann reaction. It is not a sign of intolerance for the drug, and it does not contraindicate the continuance of the specific treatment. But when the fever develops or is continuous during the interval between injections, this intercalar fever is a sign of intolerance or of intercurrent disease, and calls for the moderation, suspension or complete arrest of the specific treatment.

Presse Médicale, Paris

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67 Nose Reflex in Facial Paralysis. C. Mirallié and P. E. Weil.—p. 49.
68 *The Intradermal Reaction in Typhus. D. Mante.—p. 50.
69 Treatment of Wounds of Vessels in the Neck. Costantini and Vigot.—p. 51.
70 *Chloramin in Ophthalmology. F. de Lapersonne.—p. 53.

68. **Tuberculin Test Reaction in Typhus.**—Mante relates that repeated application of the intradermal tuberculin test to 109 typhus patients showed that a positive reaction during the febrile phase was a favorable sign; all the patients thus responding recovered. The reaction veered to positive during convalescence much more rapidly in the mild than in the graver cases. The curve of the reaction is thus closely connected with the general condition and affords a basis for the prognosis.

70. **Chloramin for the Eyes.**—De Lapersonne reports that chloramin seems to be borne perfectly by the conjunctiva when applied in a 4 per cent. collyrium or in a 1 or 2 per cent. gelose cream. It seems to be a powerful disinfectant for corneal ulcers, etc.

Progrès Médical, Paris

Feb. 2, 1918, **33**, No. 5

71 Roentgenoscopy of Heart Under Influence of Epinephrin. L. H. Dubois and C. Wagner.—p. 39.
72 Pulse Findings with Aortic Lesions. A. Mougeot.—p. 39.
73 Present Status of Treatment of Wounds. A. Aimes.—p. 41.
74 Correction of Cicatricial Flexion of Finger. R. Didier.—p. 45.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Jan. 26, 1918, **48**, No. 4

75 *Social Insurance. O. Naegeli.—p. 97.
76 *Deafness in Schoolchildren. E. Schlittler.—p. 108.

75. **The Practical Medical Side of Contract Practice.**—The introduction of compulsory social insurance into Switzerland imposes new tasks on the general practitioner, and Naegeli discusses how he can best meet them and avoid being imposed on. It lies in the hands of the physicians whether the social insurance is to be a blessing or a bane for the common people. There are six great drawbacks to social insurance. Among them is the arousing of greed in the insured, and discontent, the effort to obtain unjustified advantages in the form of unduly long rest from labor and unduly high indemnity and excessive use of drugs and dressings. Besides these three disadvantages, there are the excessive demands made on the physician's time so that quiet, thorough examinations are practically impossible, and the physician feels constantly dissatisfied and is unable to make progress in his scientific attainments, while the patients suffer. The physician's dependence on the insurance company is galling, and takes all the joy out of the actual practice of his profession and may almost completely undermine his self-reliance in medical and other matters. Last but not the least of the drawbacks, is the inability to maintain the personal factor in the treatment of the sick, and hence is lost all chance for the important psychic factors.

These drawbacks can be overcome if the physician goes to his task with confidence in his skill, sympathy, and strength of character. He must not shrink from protesting against being given more clients than he can handle, and he must make a point of thorough examinations. The insured are not anxious to be cured quickly, so thorough examinations meet with less obstacle than among the noninsured. Another point on which Naegeli insists is that a record should be kept of every case, with findings in heart, lungs and abdomen, whatever the trouble for which treatment is sought. Especial notice and record at the first examination and later should be made of the man's mentality. The urine should also be examined for albumin and sugar, but this can be done by an assistant. The ultimate outcome of each case should be added to the record. These records are especially important from the oversight they permit of the man's psychic behavior during the course of the case. His wishes and longings and the motives for them should be carefully recorded. The anamnesis is particularly important in case of a neurosis. In dubious cases, consultations should be demanded without waiting too long. Arrangements can often be made for this with the medical department of the nearest university.

The main thing, Naegeli reiterates, is the diagnosis, and this includes diagnosis by exclusion of simulation and exaggeration. Detection of these requires not only great medical knowledge and medical confidence but great psychologic talent, as the decision as to the simulation must be based usually merely on the physician's impressions. This is not enough for others, and this alone is enough to justify caution in affirming simulation. In dubious cases it is a wise plan to pass judgment on the man's condition only as it modifies his earning capacity. Although you do not assert that the man is malingering, yet you can report that his earning capacity is reduced very little if at all.

Naegeli warns of the necessity for extreme caution as to simulation in all cases in which there has been concussion of the brain, atheroma, multiple contusions and psychopathic factors. With hysteria, the complaints are constantly varying; the simulator sticks to his one trouble which is "always the same." With hysteria, the man is so convinced of his trouble that he is sure the physician will be convinced too, and he wastes no words trying to convince him, while the simulator keeps affirming the truth of his statements. The latter insists that he cannot be cured and makes no attempt to train himself to increase his earning capacity while the man with hysteria wants to be cured and rejoices at his progress. Mild hysteria and simulation are sometimes associated, and a tendency to a psychosis renders the whole problem more difficult of solution.

76. **Special Schools for the Deaf.**—Schlittler states that Basel opened last year three schools for children who are hard of hearing. All the children who could not hear a whisper at 6 feet were examined by a specialist. It was found that over three fourths of them had some curable ear trouble, and it was learned further that the hearing of about one fourth of all the supposedly normal children was somewhat impaired. Another significant discovery was that seven tenths of all the children in the classes for backward pupils had some ear disorder. In conclusion he reiterates the importance of seeking out and curing all curable cases of deafness, if for no other reason than to prevent such a loss to the military service when these children reach the military age.

Bolletino dell'Istituto Sieroterapico, Milan

November, 1917, **1**, No. 2

77 Recurrences in Experimental Infection with Spironema Recurrentis. G. Castelli.—p. 57.
78 *Agglutination Tests for Cholera. P. Negroni.—p. 75.
79 *Diagnosis of Meningitis. L. Vigano.—p. 85.
80 Vaccination of Civilian Population Against Typhoid. A. Puglicse. —p. 93.
81 Composition of the Blood in Aviators. A. Gemelli.—p. 105.
82 *Serotherapy in Infectious Jaundice. R. Inada and Others.—p. 111.
83 Distribution of Spirochetes in Organs in Infectious Jaundice. R. Kaneko and K. Okuda.—p. 131.

78. **Prophylactic Value of Agglutination in Cholera.**—Negroni's research has confirmed the value of agglutination tests for distinguishing the true cholera germs from those that resemble them. No agglutination was ever noted with the pseudocholera germs in dilution beyond 1:500 and very rarely up to this, while with true cholera germs it occurs at 1:10,000 and even at 1:100,000. The agglutination at 1:100,000 is complete in four hours with the living germs, but with germs killed with phenol it occurs in four hours only with dilutions of 1:1,000; seven hours, 1:20,000, and fourteen hours with 1:50,000.

79. **Diagnosis of Meningitis.**—Vigano remarks that agglutination occurs too late for it to have much diagnostic value, but some have reported instructive findings with the deviation of complement test, and others with the opsonic index. The precipitation test of the cerebrospinal fluid treated with an antimeningococcus serum gave a positive response only in six. These had been tested the second, third, eighth or fifteenth day. Microscopic findings were more reliable, the findings being positive in twenty-four of the thirty cases, and cultures developed in eleven. Negative findings with these tests must be compared with the clinical findings. In one case a young man with severe meningitis, fatal the seventh day, had always shown a limpid and sterile spinal fluid. Necropsy showed adhesions between the cerebellum and the medulla partitioning off the space below, and the fourth ventricle was paved with pus.

82. **Spirochetosis Icterohemorrhagiae.**—The results realized by Inada and his co-workers with intravenous injection of antiserum in forty-one cases apparently confirm the superior efficacy of this route. They declare that, in rabbits, five minutes after the intravenous injection of 0.5 of the antiserum per kg. of weight, the antibodies appeared complete in the blood. With subcutaneous injection they appear only in an incomplete form and not until after eight hours. This passive immunity lasted for three or four days. The clinical experiences were most encouraging. The cases are tabulated and compared with cases in which the subcutaneous route was followed. The intravenous serotherapy seemed to act favorable on the hemorrhagic diathesis, the pulse and purulent complications. A chill with brief fever followed the injection on three occasions. They add that 18 of the 41 patients given this intravenous serotherapy developed more or less pronounced disturbances in vision later. It was quite severe in 8. Of these 18 patients, 10 had had the disease in a severe form, 5 in a moderate form, and in 3 the courses had been atypical. Vision was reduced in 5 who had had the severe form, in one with moderate and 2 with the atypical forms.

Policlinico, Rome

Feb. 3, 1918, **25**, No. 5

84 *Frost-Bitten or Frozen Feet and Hands. D. A. Mazzolani.—p. 101.
85 Suggestions for Improving Surgical Service at the Front. G. Dragotti.—p. 107.

84. **Freezing Injuries.**—Mazzolani comments on the extreme importance from the military standpoint of frozen feet and hands, not only because of the suddenness of the disability from this cause, but the fact that the same cause is liable to act on numbers of men at once and incapacitate them for a long time. His experience has demonstrated beyond question that certain men are more liable to get their feet frozen than others, and at a temperature which others stand perfectly. These predisposed men should be sifted out and should not be sent to posts where freezing is likely. Frost-bitten limbs can be cured if taken in time. In the Red Cross hospital in his charge 23 per cent. of the patients in the early winter of 1915 were cases of frost-bite or freezing. Africans, the debilitated, the over-young, and the over-old, the homesick, those with heart disease, and those who have been frost-bitten at some time are peculiarly predisposed to freezing injuries, as also the dyspeptic and those inclined to gouty arthritis. If men in these categories cannot be kept out of posts where freezing is liable, it might be well to give them some tonic at the time.

Rivista Critica di Clinica Medica, Florence

Jan. 26, 1918, **19**, No. 4

86 *Primary Diphtheria of Skin and Genitals. E. Mondolfo.—p. 37. Commenced in No. 3, p. 25.

86. **Primary Diphtheria of the Skin.**—Mondolfo reviews the literature on wound diphtheria and cutaneous or genital lesions in which diphtheria bacilli were found. Only four cases have been published in accessible literature in which these bacilli were found in ulcerations around the anus while none could be cultivated from the air passages. Mondolfo adds another case to this last group. The male child of 3 convalescing from mild measles showed extreme prostration for which no explanation could be found for two days, when ulceration developed on the genitals and around the anus and exceptionally virulent diphtheria bacilli were found in them in almost pure cultures. Notwithstanding vigorous antitoxin treatment the child soon died. A year later he had a similar case, a girl of 2 was brought to the hospital with diagnosis of vulvar erysipelas, but the pure cultures of diphtheria bacilli found in the lesions were evidently responsible for them. The bacilli were cultivated both from the vulvar secretions and from the nose and throat, but the nose and throat seemed of normal aspect. In both cases the cutaneous lesions had been unmistakably the primary affection. It had not been differentiated until such a late stage that recovery was scarcely to be hoped for.

Archivos Españoles de Pediatria, Madrid

December, 1917, **1**, No. 2

87 *Congenital Syphilis. J. S. Covisa.—p. 65.
88 *Migrating Pneumonia in Children. A. R. Lozano.—p. 80.
89 *Pituitary Insufficiency. G. R. Lafora.—p. 94.

87. **Congenital Syphilis.**—Covisa describes eight cases of post conceptional syphilis in which thorough treatment cured the woman, and the child was born apparently free from any traces of the disease. The salvarsan or its substitutes must be given cautiously in such cases as the woman's heart and kidneys are already bearing the extra strain of the pregnancy. None of the twenty-three pregnant women he has treated in this way showed any symptom or signs of intolerance or by-effects of any kind. The Wassermann reaction in young infants is often unreliable.

88. **Migrating Pneumonia in Young Children.**—Instead of the pneumonia being restricted to one lobe, it spread through the entire lung in over 10 per cent. of Lozano's sixty-five cases of pneumonia in children. In these seven migrating cases the children were between 1 and 3 years old. The other lung and the bronchi never seemed to be involved, and there was no preceding rhinopharyngitis. The seven children all recovered although the course was unusually long; in some two months elapsed before recovery was complete. This long course renders nourishing feeding particularly important, especially as the children have no appetite. In one of his cases the child was fed by a catheter introduced through the nose. The children must be given water freely; this is as necessary as or even more so than food. An airy, well ventilated room is indispensable, protecting the child against drafts and getting chilled. Antipneumococcus serum and diphtheria antitoxin were given in some cases; they did not display any specific action, but seemed to be a useful stimulant. Steam in the room aids in relieving the cough; oxygen may be useful if there is much dyspnea, although it is less effectual here than in bronchopneumonia.

89. **Pituitary Insufficiency.**—Lafora reports a case of diabetes insipidus in a boy of 12 with evidences of the adiposogenital syndrome and headache. Pituitary treatment by the mouth did not modify the clinical picture but after injection of pituitary extract the polyuria dropped from an average of 12 liters to less than 2 liters, and the effect was manifest for thirty hours. This abrupt inhibiting effect was accompanied by intense headache and ill feelings in general. Under half the dose the output of urine was only 2 or 3 liters and there was no headache. Roentgenoscopy showed the sella turcica enlarged and the case has continued a progressive course since, with periods of intermission when the tissues seem to adapt themselves to the tumor and the symptoms subside for a time. At necropsy in two similar cases a cyst was found in one and a sarcoma in the other.

Repertorio de Medicina y Cirugia, Bogota

January, 1918, **9**, No. 4

90 *The Tacamocho Epidemic. E. Henao.—p. 171.
91 *Foreign Body in Bladder. C. T. Macias.—p. 207.
92 Experimental Surgery. R. Sanmartin.—p. 211.

90. **Yellow Fever in Colombia.**—Thirty-six pages are devoted to reproduction of the official reports and correspondence in regard to five cases of fever occurring some time ago in the course of two weeks among the employees of the Antioquia R. R. These are all picked men, and the drinking water is boiled. The fever began with sudden onset, and 40 per cent. of the men affected died within thirty-six hours. Three had been taken sick within eighteen hours. The local physicians diagnosed yellow fever, and although the stegomyia mosquito had never been found in that region before, search for it then showed its presence along the entire railway. Bacteriologic examination of the blood was constantly negative. Two members of the Rockefeller Yellow Fever Commission visited the spot and studied the evidence, their verdict being that the epidemic could not have been yellow fever nor malaria. The fact that no further cases, developed notwithstanding the prevalence of the stegomyia, they accepted as evidence against the disease having been yellow fever.

91. **Foreign Bodies in the Bladder.**—Macias removed from the bladder part of a catheter guide by means of a median incision running from a scrotal fistula nearly to the anus, with a cross incision. There was almost impassible stenosis of the urethra. The urethra was incised where it entered the median perineal aponeurosis, and the foreign body was easily removed, the fistulas were resected and clinically normal conditions restored with smooth recovery. The case emphasizes, he remarks, the superiority of the perineal over suprapubic incision for all such foreign bodies in the bladder.

Revista de la Asociacion Medica Argentina, Buenos Aires

December, 1917, **27**, No. 157

93 *Polycythemia in Tuberculosis. P. M. Barlaro.—p. 719.
94 *Mental Disturbances with Brain Tumors. J. T. Borda.—p. 724.
95 *Differential Diagnosis of Brain Tumors. M. R. Castex.—p. 770.
96 *Diagnosis of Subtentorial Tumors. R. Chiappori.—p. 810.
97 Glands with Internal Secretion. A. M. Crispin (New York). —p. 845.
98 *Poisonous Spiders. E. Escomel.—p. 853.
99 *Megacolon. (Bolos fecales.) R. Finochietto.—p. 873.
100 *Tumors of Pituitary Body. B. A. Houssay.—p. 897. E. V. Segura.—p. 984.
101 Aneurysm of the Axilla. P. Jaureguí.—p. 908.
102 *Sarcoma of Thyroid Gland. J. M. Jorge, Jr., and F. C. Arrillaga. p. 932.
103 Prophylaxis of Tuberculosis. J. Picado.—p. 964.
104 Osteoplastic Disarticulations. G. Zorraquin.—p. 1030. Conclusion.

93. **Polycythemia in Tuberculosis.**—Barlaro's experience has been that the tuberculous toxins may induce a reduction or an increase in the numbers of red corpuscles in the blood, with or without enlargement of the spleen. Anemia and polycythemia may alternate, but the latter gives the best prognosis.

94. **Psychic Disturbance with Brain Tumors.**—Borda is professor of psychiatry and his extensive experience has shown that brain tumors, wherever the site, induce a constant set of symptoms, namely, a tendency to apathy, mental torpor, forgetfulness, confusion and mental decadence. Superposed on this there may be delirium or stupor. These psychic changes are progressive but they do not differ essentially from similar sets of symptoms developing under the influence of toxic causes. He never was able to detect any special psychic features with tumors in the frontal lobe. Six cases are described with minute detail from the psychiatric standpoint.

95. **Brain Tumors.**—Castex remarks that judging from his own service, brain tumors are frequent in Argentina. He discusses the general and differential diagnosis and the etiology. The subjects are usually adolescents or adults under 40. The laboratory tests for syphilis, etc., are so unreliable with a brain tumor that he now pays little heed to them, basing the diagnosis on the clinical examination and the history of the case. Echinococcus cysts display no characteristic symptoms, and the serodiagnosis is not reliable as many persons give a positive reaction and show eosinophilia who are free from echinococcus disease. Circumscribed serous meningitis is particularly misleading; in a number of supposed brain tumors necropsy revealed merely the serous affection.

96. **Cerebellopontile Angle Tumors.**—Chiappori emphasizes the necessity for ascertaining the exact conditions relative to the beginning of disturbances from this cause, the order in which the symptoms develop, and the character of each of the signs, in the attempt to determine the location of the tumor.

98. **Poisonous Spiders.**—Escomel describes some of the poisonous spiders of southern Peru. The bites of the two species described have been known to cause death. Potassium permanganate internally and externally seems the best treatment known to date.

99. **Impacted Feces.**—Finochietto's article is profusely illustrated showing the various means available for getting rid of large accumulations of impacted feces. When just above the sigmoid flexure, the lower end of the hard mass can usually be crumbled off with the finger. The rest can be aspirated with a giant sigmoidoscope.

100. **Tumors of Pituitary Body.**—Houssay relates that he knows of over forty cases of tumors of the pituitary body in Argentina, and has personally encountered twenty-five and published reports on seventeen. Most of the patients applied for relief first on account of disturbances in vision. He insists that every case of atrophy of the papilla or modification of the visual field for which no explanation is apparent, should have the sella turcica examined with the roentgen rays. Acromegaly points almost certainly to a pituitary tumor. Other diagnostic points are described in detail.

Segura reproduces illustrations showing the technics of different surgeons for removing pituitary tumors, and describes his own method which is a modification of the Hirsch septal technic. There is no hemorrhage or shock with this, and local anesthesia is sufficient, while it permits reinspection of the site of the tumor at any time and radium treatment. He has applied this technic in fourteen cases. The intracerebral proliferation of the probably malignant tumor exonerated the operation as the cause of death in one case. In two other cases the diagnosis of pituitary tumor proved to be erroneous, the malignant tumor originating at another point in the brain. In all his cases the immediate result was extremely gratifying, and the patients were all benefited and recovered except in these three cases. With the Hirsch method, the submucosa resection of the septum is done according to Killian, the incision along the anterior margin of the cartilaginous portion. The mucosa of the cartilage and bone is then separated and turned back on one side. The cartilage is then cut down to, but not into, the mucosa, which is then separated from the other side of the septum. The two sheets of mucosa are then opened to admit the speculum. The front wall of the sphenoidal sinus is resected, throwing the two into one large cavity, and the sella turcica is opened, with the chisel, from the sphenoidal sinus and the wall further broken away to expose the pituitary body. He interposes a pause of eight or ten minutes

between these different steps of the operation. If the tumor is not a cyst, he shells it out, working mostly from above downward. Usually these tumors are soft and friable. The field of operation is drained with gauze between the two sheets of the septum mucosa, the nostrils packed with cotton.

He keeps the passage down to the sella turcica permanently permeable by severing the right sheet of the septum mucosa at the back and above and fitting it against the left hand sheet of mucosa, thus leaving open the right nasal fossa, sphenoidal sinus and the cavity of the sella turcica. The tamponing must be firm; it is not needed after twenty-four hours. The septum is left thus attached only on the left side, but this does not seem to do any harm, the septum returning spontaneously to the middle of the cavity. It can be pushed aside at any time when the speculum is introduced to inspect anew the sella turcica region. In his last seven cases he refrained from the preliminary removal of the turbinate bones which is a cardinal point in the original Hirsch technic. By ample dilation of the nasal fossas with a dilator which he has had made for the purpose and describes with illustrations, he has been able to stretch the parts enough to admit the speculum. Of course the nose must be free from any inflammatory process, and he makes a point of giving hexamethylenamin systematically before and after the operation. He is careful not to resect the floor or the roof of the nasal fossas in order not to damage the architectural structure of the nose, and warns further that every step of the operation must be controlled by the eye, never working blindly in the depths, for fear of injuring the cavernous sinus. All the patients benefited materially by the operation, the success depending naturally on the nature and extent of the tumor and the stage of the pathologic evolution.

102. **Cancer of the Thyroid.**—Acute cancer and woody inflammation in the thyroid (Riedel's disease), may present such close resemblance that only microscopic examination of a scrap of the tissue will permit the differential diagnosis. Both occur generally in the thirties, and run a comparatively rapid course. A case is described in which, after a severe attack of grip, the temperature kept above normal and the neck enlarged, the enlargement settling finally in the thyroid region. The breasts also became very large and the patient felt weak and complained of palpitations, with edema over the upper part of the trunk. Necropsy revealed sarcoma of the thyroid with proliferation of the tumor into the veins and right auricle, reaching almost to the ventricle. The extent of this intravenous proliferation surpassed, it is stated, anything of the kind on record. The malignant disease ran its course in about three months, but there had been a tendency to goiter for fifteen years. It is reiterated that operative treatment of goiters which do not yield to medical measures is the only guarantee against malignant degeneration.

Revista de Medicina y Cirugia, Havana

Feb. 10, 1918, **22**, No. 3

105 *Reflex Amyotrophy. J. O. Cano.—p. 59.
106 Extrinsic Factors in Gastric Ulcer. R. Grau.—p. 67.
107 Albee's Operation for Disease of the Spine. A. Inclan.—p. 69.
108 Heliotherapy and Thalassotherapy. F. J. Velez.—p. 78.

105. **Amyotrophy of Articular Origin.**—Cano quotes with approval Reclus' statement that it is a mistake to think that an arthritis is done with when the inflammatory symptoms have subsided. A train of functional disturbances are liable to follow, from simple slight reduction of function to atrophic paralysis. In his nine cases the extensor muscles and these alone became atrophied. His patients were from 17 to 30 years old, free from predisposing lead or alcohol poisoning or gouty taint. It is evident, he reiterates, that any joint lesion, however insignificant it may be, is liable to entail a grave and incurable affection. The irritation of the nerve terminals in the joint is responsible for it by a reflex mechanism, some of the cells in the anterior cornu of the spinal cord suffering. This irritation should not be aggravated by the use of the joint. It should be left in repose after the inflammatory phase is past. The muscles should not be forced into atrophy by violent contractions induced with strong electric currents. Electric treatment should be applied only by an expert who will use it cautiously. The surgeon should explain the conditions to the patient and warn of the probable prognosis. Further study is needed of these functional impotencies after joint disease, especially in connection with workmen's compensation.

Revista Medica Cubana, Havana

January, 1918, **29**, No. 1

109 Suggestions for Improving Methods of Collection of Vital Statistics. R. J. Fosalba.—p. 6.
110 Indications for Cataract Operations. J. Santos Fernandez.—p. 14.
111 *Hematologic Index in Cuba. L. Plasencia.—p. 24.
112 *Asphyxia from Forensic Standpoint. R. de Castro.—p. 36.
113 Fungus Parasites of Man. V. P. Castello.—p. 51.

111. **The Blood Picture in Cubans.**—Plasencia found in thirty-five healthy Cubans and in 1,000 specimens of blood from various patients that the reds numbered from four to six millions, thus not differing from the normal in latitudes farther north and in various races. The proportions of leukocytes and hemoglobin also keep within the familiar normal standards in health, but the relative leukocyte count shows exceptionally high figures for the polymorphous cells and the lymphocytes. The averages in fourteen men (and eleven women) were 56 (46.6) per cent. polymorphous cells; 5.2 (5.1) per cent. large mononuclears; 36.9 (36.1) per cent. lymphocytes; 2.5 (1.3) per cent. eosinophils, and 0.4 (0.5) per cent. mast cells.

112. **Asphyxia from Medicolegal Standpoint.**—De Castro emphasizes among the other features of death from asphyxia that the face and skin may present a normal aspect after death from asphyxia. The position of the head may lead to the mechanical subsidence of the primary congestion and cyanosis as the force of the circulation weakens. On the other hand, cyanosis may accompany death from other causes than asphyxia, and cyanosis often develops in the lower lying parts of the body after death. Visceral ecchymosis and congestion of the organs seem to be the most characteristic signs of asphyxia. The blood in the large vessels and right heart is generally free from clots, and sometimes in the left heart likewise. The oxygen in the blood may be down to 1.75 per cent. while carbon dioxid may be present up to 77 per cent. but there is no special sign, internal or external, peculiar to asphyxia as the cause of death.

Revista de Medicina y Cirugia Practicas, Madrid

Jan. 14, 1918, **118**, No. 1490

114 *Enucleation in Sympathetic Ophthalmia. S. G. Mansilla.—p. 33.

114. **Sympathetic Ophthalmia.**—Vision in the right eye had long been lost and the eyeball had shriveled and was hard. After a long latent period this eye became painful and in a few months the left eye showed symptoms of incipient neuritis. Enucleation of the atrophied right eye was followed by complete retrogression of the left optic neuritis, and vision returned to normal in the left eye. The enucleated eyeball showed dislocation of the lens; the lens then acting like a foreign body had set up the irritation.

Semana Medica, Buenos Aires

Dec. 6, 1917, **24**, No. 49

115 *Variola at Buenos Aires. E. R. Coni.—p. 629.
116 *Pregnancy in Uterus Didelphys. E. Mazzini.—p. 630.
117 *Mortality from Tuberculosis. E. R. Coni.—p. 638.
118 *Bacteriology of Tuberculosis. M. R. Castroman.—p. 639.
119 The Suprarenals in Malaria. C. Fraga.—p. 649.

Dec. 13, 1917, **24**, No. 50

120 Malformations of the Kidneys. F. A. Deluca.—p. 657.
121 Triumphs of Practical Prophylaxis. E. R. Coni.—p. 661.
122 History of Medicine. L. Bard.—p. 662. Continuation.
123 Infant Mortality. E. R. Coni.—p. 670.
124 The Thyroid and the Oxidizing Ferments. L. Goldenberg.—p. 671.
125 Care of the Sick and Poor at Buenos Aires. E. R. Coni.—p. 674. Continuation.
126 The Fight Against Tuberculosis. C. Ferreira.—p. 678.

115. **No Deaths from Smallpox at Buenos Aires.**—The subtitle of Coni's article is "The Extinguishing of Smallpox Mortality" as he cites figures to show the diminishing mor-

tality. There have been a total of 11,459 deaths from smallpox at Buenos Aires since 1879, but in 1910 the figure dropped to 543, and to 1 each in 1914 and 1915, and none in 1916. No other Latin-American country can make such a showing, Coni remarks, and he ascribes this triumph to the efforts of Penna, chief of the public health service, hailing him as the paladin of the battle against variola.

116. **Pregnancy in Uterus Didelphys.**—The gravid cornu became twisted and the apoplexy of the uterus and placenta from the torsion compelled operative relief. Mazzini expected to find merely premature separation of the placenta with internal hemorrhage, having overlooked the spiral folds and crevices in the cervix which should have warned of the torsion. The parts had suffered and the gravid cornu and its adnexa were removed. Conditions seem propitious for future pregnancies as the half of the uterus left, with its adnexa, seem practically normal.

117. **Increasing Mortality from Tuberculosis.**—Coni reproduces recent vital statistics which show a constant increase in the tuberculosis mortality during the years of the war. The prevailing lack of work and scarcity of food are making their influence felt in this way. He remarks that the conflicts between capital and labor are assuming an alarming endemic character. He urges the state to interfere as the frequent strikes and threats of strikes are seriously undermining the general public health, as is evident in the tuberculosis mortality. Since 1877, the tuberculosis death rate had dropped from 28.1 per 10,000 to 15.8 in 1913, but it began to climb again with the war, and reached 19.3 in 1916 and has been even higher since.

118. **The "New Bacteriology of Tuberculosis."**—Castroman applies this term to Ferran's conception of the tubercle bacillus as the last link of a chain of mutations. He argues that this conception gives a promise of successful treatment by curing before the true tuberculosis stage is reached.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Jan. 19, 1918, **1**, No. 3

127 *Atropin in Sinus Bradycardia. A. K. J. de Haas.—p. 147.
128 *Correction of Saddle Nose. E. W. De Flines.—p. 154.
129 *Psychoses in Camp. H. Van der Hoeven, Jr.—p. 158.
130 The Medical Officer on East Indian Ships. B. M. van Driel. —p. 164.
131 Flaccid Paralysis. G. C. Bolten.—p. 167.

127. **Atropin in Bradycardia.**—De Haas gives a description with tracings of a case of Adams-Stokes disease with sinus bradycardia in a man of 71. Although everything seemed to indicate that overexcitability of the vagus was responsible for the symptoms, doses of atropin up to 2.2 mg. had no accelerating influence on the pulse. Vagotony, therefore, cannot be responsible for the bradycardia in this case. The trouble, he declares, must be some obstacle to conduction between the sinus and the atrium.

128. **Plastic Correction of Saddle Nose.**—De Flines gives illustrations showing the excellent effect obtained in two cases of saddle nose by ingrafting a piece of bone to fit the place. It was taken with its periosteum from the tibia. Roentgenograms a year later show the bone implant of the same size and shape. It does not seem to have grown to the bone of the nose, but it shows no signs of absorption.

129. **Psychoses in Camp.**—Van der Hoeven relates that complete anesthesia of both halves of the body was found almost constantly in the several hundred soldiers that have passed through his service for nervous and mental disease. He found further that a large percentage of the men could have the cornea struck with the handle of a percussion hammer without the least trace of pain. There was lacrimation but no pain. Restriction of the visual field was common, and urticaria was easily induced by stroking the skin. He comments on the difficulty in the military environment of examining men with psychopathies. The commander assumes simulation whenever a man with normal temperature complains of symptoms, and it is a fact that now all the manifestations of disease are more or less influenced in the soldier by his distaste for military service and his longing to go home. Entirely opposite to the experiences in civilian circles, the mobilized Netherlands soldier more or less unconsciously strives to make the most impressive presentation of his symptoms. With all other forms of disability, the classification of the men as fitted for full duty, light duty, and capable only of manual work, has proved beneficial, but not so with the psychopathies.

Hospitalstidende, Copenhagen

Jan. 17, 1918, **61**, No. 3

132 *Alcohol Sterilization. J. Christiansen.—p. 65. Commenced in No. 2, p. 33.

Jan. 23, 1918, **61**, No. 4

133 The Colloidal Gold Reaction in the Cerebrospinal Fluid Not Specific for Syphilis. (Guldsolreaktionen i Spinalvæsken.) A. V. Neel. —p. 97.

132. **Improved Alcohol Sterilization.**—Christiansen's extensive research seems to have confirmed the hydrate theory of the action of alcohol—one molecule of methyl alcohol combines with 2 molecules of water; of ethyl alcohol with 4; propyl alcohol with 8; butyl alcohol with 16, and amyl alcohol with 32 molecules of water. The two latter alcohols are not very soluble in water and hence not practicable for sterilizing the skin, but propyl alcohol has numerous advantages over ordinary alcohol for sterilization as he explains in detail. It seems that alcohol makes its way rapidly into the cells when the superficial tension of about 0.4 is reached. Once inside the cells, the alcohol induces a kind of fixation, that is, in combination with the salt present in the bacteria it induces an irreversible precipitation of the protoplasm which signifies the death of the bacterium. Higher concentrations of alcohol do not have this effect but merely suck the water out of the protoplasm, which dries up the bacteria, but they are very resistant to drying. The power of alcohols to penetrate the thin layer of grease on the skin parallels their bactericidal power, as both are the effect of the same cause, namely, a low superficial tension and high solvent power for water and lipoids. And of all the alcohols, propyl alcohol is the most efficient, as he shows by his comprehensive tests on rat skin, human skin and ulcers. Its action compared favorably with that of iodin, phenol, and other powerful disinfectants, and he urges the general use of n-propyl alcohol as a disinfectant for skin and wounds. When pure it mixes freely with water. Mixed with three times as much water, the superficial tension is 0.4.

Svenska Läkaresällskapets Handlingar, Stockholm

Dec. 31, 1917, **43**, No. 4

134 *Experimental Renal Insufficiency. E. L. Backman.—p. 1409.
135 *Blood Findings in the Prematurely Born. A. Lichtenstein.—p. 1533.

134. **Experimental Insufficiency of the Kidneys.**—Over 123 pages are devoted to the methods and results of experimental insufficiency of the kidneys in rabbits. Backman records the action of the blood pressure, total amount, specific gravity and nitrogen content of the urine, the osmotic concentration of the blood, its urea and residual nitrogen content and the presence in the blood of substances tending to raise the blood pressure. He found albumin regularly in the urine of every rabbit when first examined. The renal insufficiency was induced by removing one kidney and resecting part of the other.

135. **The Blood in the Prematurely Born.**—Lichtenstein's comprehensive work fills 297 pages, including ten pages of bibliographic references given in full. The complete case history, details as to feeding, etc., are given of ninety-two prematurely born children, this section filling over 100 pages, the histories being continued for a few months to a year or more. In treatment of the anemia, which is common in the prematurely born, he obtained excellent results with iron, but it had to be given in large doses, 0.25 or 0.5 gm. of ferrous lactate from one to three times a day. Fine results were obtained with this even without change of diet. The iron was always well tolerated.